

MOTOR TREND

The Car Owners Magazine

SEPTEMBER 1953

25c

NOW — MORE PAGES!

ROAD TESTS: DeSoto, Kaiser,
Studebaker Champion

World Car Survey

GAS TURBINES—Full Story

TECHNOLOGY DEPICT

**THE MAN'S
DREAM**

Truly Small
Sports Car





Communist machine-gun fire dropped him in combat. But whole blood kept him alive, saw him through the hospital. He thanks you for his life.



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 "We're **HERE** ...
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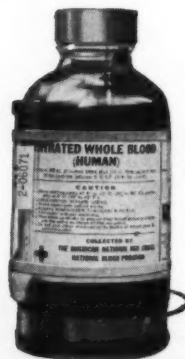
Each one of these people is alive today because someone gave blood.

If you've given blood before, you know how easy it is—how quick and painless. And you know what a wonderful feeling it is when you realize that what you've done may give another person his life.

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Plym. '50-'52

Merc. '49-'51
Willys '52-'53
Pont. '49-'52

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DeSoto '53 only
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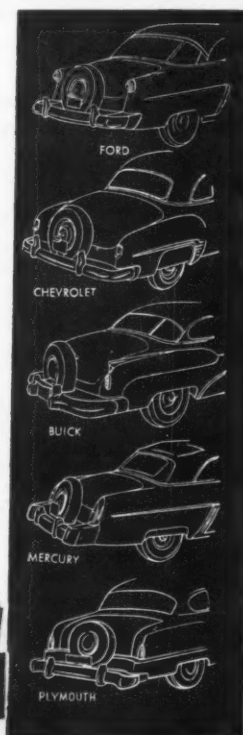
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DEALERS

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September 1953

Three



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Four

SEPTEMBER 1953
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**MOTOR
TREND**



THE CAR OWNERS MAGAZINE

ROAD TEST SECTION:

THE CARS AT A GLANCE.....	27
DESOTO—A DESIRABLE FAMILY CAR.....	28
The DeSoto Firedome is breaking its ties with the past.	
EVERYBODY LOOKS AT A KAISER.....	30
Have you seen a new Manhattan? If not, you're missing something.	
STUDEBAKER—PENNY-PINCHING CHAMPION.....	32
This smooth piece of sculpture should be titled "A Study in Economy."	

FEATURES:

GAS TURBINES—THE FULL STORY.....	Maxwell Boyd	17
When will the turbocar become a commercial proposition?		
SO YOU WANT A SPORTS CAR?.....	Nick Alexander	20
So what if it won't outdig a stock Chevy? It's still fun!		
NOW YOU CAN KEEP COOL.....	Jim Lodge	22
An MT Research report on the major car air conditioning systems.		
WHAT IS TRAFFIC CONTROL?.....	Robert Scollay	24
Traffic engineers do their best to get you home in time for dinner.		
SOUTHERN CALIFORNIA IN THREE DAYS.....	Robert F. Nitske with Pete Molson	34
You'll find a world of variety in this three-day trip.		
ONE MAN'S DREAM.....	Jim Potter	38
Vince Gardner proudly presents his completed sports car.		
TREND IN CUSTOM DESIGN.....		40
Our customs leave their old paths to invade the European domain.		
HOLLYWOOD TRAFFIC STOPPER.....		45
The "Stardust" impresses the world's most impressionable city.		
DRAG IT OUT!.....	Lester Nehamkin	46
These Sunday drivers try out their cars off the crowded highways.		
CLASSIC COMMENTS.....	Robert J. Gottlieb	50
Packard—1899 to 1953—an American institution.		
MOTOR TREND DESIGN CONTEST WINNERS.....		56
From dream, to drawing board, to—?		
WORLD CAR SURVEY.....	MT Research	60
The facts and figures on the cars of many nations.		
A JAGUAR WIN.....		68
Around the clock, twice—for a new Le Mans record.		
LATEST ON THE MEXICAN ROAD RACE.....		74
Two stock and two sports car classes will mean more cars, more variety.		
PACK 'EM YOURSELF.....	Tommy Amer	76
If you can change a flat, you should be able to pack wheel bearings.		

DEPARTMENTS:

BRIEFS.....	5	EDITORIAL.....	12
LETTERS.....	6	WHAT'S YOUR IDEA?.....	92
SPOTLIGHT ON DETROIT.....	10	SELL 'N' SWAP.....	93
TRENDS IN PRODUCTS.....		96	

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Motor Trend

BRIEFS . . . by the editors

CANADIANS! Like to earn some extra spending money? Know of interesting automotive developments in your locale? If you do, tell us about it, so we can tell the rest of the world. What's more important to you is that you'll get some cash you hadn't counted on.

DURING RECENT TRIP through East (from Detroit, Mich. to Philadelphia, Penn. and return) we noted some interesting things. Approaching city limits of Toledo, saw a sign that said, "Close muffler in city." Outside of Elmore, Ohio sign says, "Vehicles must have adequate mufflers." They like it quiet there, evidently.

Despite fact that trucks transport major share of food and staples, it's difficult not to get annoyed at them on two-lane roads. Drivers as a result probably take too many chances passing them, particularly at night. As a suggestion, take time to dip your headlights behind a truck. He will let you know if road is clear by dipping his lights, or by not dipping them if road is not clear.

This trip (in a '53 Hudson Hornet) was over Fourth of July weekend. Gratifying not to see too many drivers taking chances, or too many drunk drivers. Saw only one inexcusable situation in which driver in 1939 Chrysler, loaded down with children, was weaving over highway at high rate of speed. Everyone had to give him wide berth. Hope his children made it.

THIS IS A TESTIMONIAL for hubcap locks (advertised elsewhere). Your editor recently lost a set of four wire-wheel hubcaps while his car was parked in a brightly lit parking lot. If you don't use hubcap locks you should otherwise bolt caps to the wheels. Believe us, it pays off.

CUSTOM CAR SECTION of the 4th Annual International Motorama, to be held in Los Angeles October 26 through November 1, will once again be one of outstanding features of this annual presentation. Foreign cars of various types, sports cars, Fiberglas creations, competition machines including many of the famed record-breaking Bonneville streamliners, hot rods, classics and antiques, as well as a vast array of motorcycles and motorcycle equipment, will be on exhibit. Commercial displays, predominantly made up of equipment in speed and power fields, will be shown. Show producer R. E. Petersen and Lee O. Ryan, managing director, jointly announced that anyone interested in obtaining commercial exhibit space is requested to write to Motorama, Inc., 5959 Hollywood Blvd., Los Angeles 28, Calif. Car owners who desire to enter their vehicles as house displays should contact Bill Burke, exhibits director, at same address.

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Letters

HEADS OR TAILS?

Gentlemen:

The feature article titled, "Heads or Tails?" that was published in the May issue of *MOTOR TREND* is interesting and enlightening to the custom car fan. However, ... some photographs shown were taken at Autorama and not at the World Motor Sports Show as reported. Bill Harkins, who took the photographs, spent a day and a half photographing the more than 120 cars that constituted the Autorama show, and stated it was the finest show he has ever covered.

To further elucidate, the photo in the upper left hand corner of page 38 is of a '47 customized Studebaker, owned by Jay Martin of Rockville, Conn., and the photo that is shown in the outside column of page 39 and second from the top is another view of the same car.

The '49 Ford with the Kaiser grille, that is shown in the third photo from the top on page 38, is owned by Paul J. Bazzano of Torrington, Conn. The photo on the bottom of page 38 is of a '50 Hudson owned by Alfred Binder of East Hampton, Conn. The '40 Lincoln Continental fitted with a '50 Nash Grille is owned by George Clarke, Jr., of Milford, Conn. The '41 Plymouth shown at the top of the inside column on page 39 is owned by Arthur J. Wiess of Southington, Conn. The bottom photo on the inside column of page 39 is a '47 Buick owned by Herbert E. Moore of Torrington, Conn. The '40 Mercury shown in the top photo of the outside column on page 39 is owned by Lee Rouleau of Berlin, Conn. The '51 Olds shown in the photo at the bottom of the outside column of page 39 is owned by Louis Cressia of Bridgeport, Conn.

We feel that our efforts here at the Autorama Show have established a strong desire for many enthusiasts to strive for something new and unique; the cars pictured in the above-mentioned article help to substantiate the claim.

Therefore, in all fairness to us who produce Autorama and to those participants who labor to prepare their cars for exhibit,

it is fitting and proper that satisfactory retraction be made

Joe Kizis
Producer-Director
AUTORAMA

At the time of publication, owners' names and addresses of the cars pictured were not available. We hope this will serve to give credit where credit is due and are extremely sorry to have slighted the Autorama show by our error.—Editor.

POWER STEERING POTENTIALITIES

Gentlemen:

Mr. Scollay's article, "Is Power Steering Here to Stay?" was extremely interesting to me and at the same time caused me to think a bit about the basic ideas expounded or implied. The article, though obviously "selling" the need for power steering, has perhaps overlooked the obvious. In which direction is the automobile going? Are autos to be boats, as depicted in the picture heading the article? Of course, boats have little feel, but they are not required to negotiate 90-degree turns in limited areas, as are autos. Also, when boats travel at speeds of 35 to 40 mph on closed courses it is necessary that steering have "feel." When speed is increased, this "feel" becomes more important. Can't we have safe, navigable cars *without* power steering? Why can't designers make a car that is balanced? (Better balance is not possible since balance is defined as "equal distribution of weight, amount, etc.") Balance, with a suitable reduction in pounds, would produce a car capable of being controlled and maneuvered by the average person without the aid of power this or that.

William S. Arway
Dover, N. J.

TREND IN DESIGN

Gentlemen:

In MT "Briefs" you asked my opinion on "Trend in Design," by Strother MacMinn (see MT, July issue—Ed). Here it is: it's lousy. Any time that we Americans say that our three-people-in-the-front-seat pregnant elephant automobiles

This Month's Cover

car is truly a dream—the dream of Vince Gardner, winner of the *MOTOR TREND*-Ford Times 1950 Ford Anglia Contest. The full story of the Gardner Special will be found on page 38. The other dream pictured in Felix Zelenka's color photo is Patricia Wright, a TV actress currently playing opposite Ray Milland in the new TV series, "Trouble Around the House."



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are in any way compatible to the fast, sleek, lean, and hungry lines of the Italian school of auto design, we are just dreaming. Please don't compare our "overturned bedpans" with the chrome-free lovelies of Italy

Brent Stockweli
San Francisco 17, Calif.

Gentlemen:

Regarding MacMinn's piece, I wasn't impressed with his comments, particularly, but his art work, it's great!

A. W. McGrew
Address unknown

Gentlemen:

"Trend in Design" was very interesting but a lot more can be said about it. However, this is the type feature I am very much interested in, so I liked it.

John Engels Jr.
Minneapolis, Minn.

Gentlemen:

I agree wholeheartedly with Mr. MacMinn's theory in evaluating the design of present day automobiles.

I disagree, though, with his statement as follows: "The present American trend toward simplicity and harmonious decoration . . ." Certainly the styling of Pontiac, with its Dual Streak motif carried out in chrome; Mercury, with multi-fake air-scoops; and Cadillac, with oversize bumper guards, fake air-scoops, and taillights which stick up a "mile high" in the air, are far from simple.

I would like to add that an article on design each month would be a welcome addition to your magazine.

J. Gill Roberts
Arlington, Va.

Gentlemen:

I found Strother MacMinn's "Trend in Design" most interesting and I wish you would print more articles on the subject of design and styling.

Gary Mitnek
Culver City, Calif.

Many thanks for your reaction to MacMinn's "Trend in Design," July issue. While we're on styling and design, turn to page 56 for samples from the winning portfolios of MOTOR TREND's recent Automotive and Industrial Design Contest.—Editor.

WHY CONVERTIBLES?

Gentlemen:

Just finished your article, "Is It Wise to Own a Convertible?" I'd like to give you my opinion on this matter. I have had three cars in the last four years, all converts. The small, and I mean small, gripes L. D. James gave never bother me in the least, for the simple fact that I feel a convert is a form of sports car. I take pride in my automobile, as many do, and take care of it accordingly. I shall never buy anything but a convertible.

A/2c Walter Walczak
Thule AB, Greenland

Gentlemen:

Your friend "Dude" James is something more than a surprise to me! He opened

(Continued on next page)

OFFICIAL THIRD YEAR RUNNING GASOLINE SOUTHERN 500 AT DARLINGTON

AND CHOICE OF THE NASCAR CHAMPS



Three men who know the importance of "Instant Response" . . . Left to right: Tim Flock, 1952 NASCAR Champion, Herb Thomas, 1951 NASCAR Champion, Fonty Flock, winner of the Southern 500 at Darlington in 1952.

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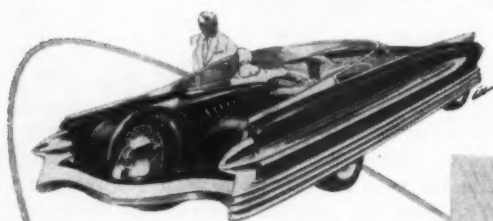
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Below—another interesting H-W Continental "car of tomorrow" by Richard Arbib, one of our prominent associate designers. Beautiful 9"x12" prints, suitable for framing, are available for 25¢ each (coin only) to cover cost of mailing and handling.

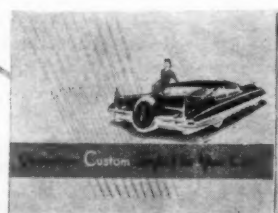
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his mouth a bit too far for any real Americans to swallow his line of tripe re the advisability of owning a convertible.

Our friend "Dude" must be thinking about the Milquetoast type of American individual when he considers that only suckers and sportsmen own or should buy convertibles... such utter rot!

A convertible car is a vehicle meant for those understanding people who want to live their life, not coast through a line of least-resistant existence... in a rut... driving... another Spam can on wheels! For such type of people, my reply to friend "Dude" is not meant; however, they are welcome to read on in hopes they too may become hep enough to realize that they are missing the greatest thrill of our age! Must we always measure our life with a dollar sign?

Ralph S. Fralick
Miami 38, Fla.

CLASSIC PICTURES

Gentlemen:

I would like to see full-page pictures of classic automobiles that would be suitable for framing.

Robert Unger

North Tonawanda, N. Y.

The 1938 Packard Twelve Convertible shown on page 50 is such a picture, but then if this one doesn't suit you, watch our "Classic Comments" feature each month.—Editor.

CAR TRADE-IN INFORMATION

Gentlemen:

Thanks for your article, "How Often Should You Trade in Your Car," by Hank Wieand Bowman. This is one article that is of real value to the average car owner who cannot afford custom work. It gives the car owner the real lowdown on the value of his automobile in the chart, "Resale Value in Per Cent of Original F.O.B. Price." Keep more of this type coming.

John De Haan

Camp Atterbury, Ind.

This article received wide acclaim by our readers. Also, you'll be interested to know that the Catholic Digest reprinted a condensation of the article in their August issue.—Editor.



"Give 'er the four thousand mile checkup."

Just Simple Arithmetic

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Spotlight on Detroit as we go to press

By Floyd G. Lawrence

DETROIT, MICHIGAN—If you've got an itch to get behind the wheel of a Chevrolet Corvette, you might as well scratch it. Better are your chances of winning the Mille Miglia on a kiddie car.

Chevrolet had promised production of the Powergliding showpieces by the end of June. Accordingly, on June 30, the accompanying photo with three Corvettes carefully posed to show the car in "production" was released to the press. What this public relations maneuvering means is simply that production has been declared. The low-gear output of the cars was unchanged by the declaration.

Last month only 13 of the cars had been built on the six-car-long assembly line in Flint. The first Corvette went to Harlow Curtice, GM president. The next three went to other GM executives and the remaining nine are undergoing further engineering tests. If present distribution pattern continues, the hoped-for output of 300 additional units this year will scarcely take care of the top GM brass.

Thus far, the cars have been built by the hand lay-up method. Before the year is out the plastic body may be formed from sheets by matched dies and then accelerated production of the cars may begin. A thousand bodies a month are planned for 1954, and by June or July you should be able to touch one at your local dealers and get on his waiting list.

Price of the Corvette is announced officially at \$3250 including Powerglide transmission as standard equipment. Design is evolving from the original show models, but the rear deck is now in two parts: one to cover the top and the other for luggage. Like the show cars, the production Corvette is a two-seater painted white with a red cockpit and additional trim in red and chrome. Objections to the fact that the car has no bumpers to protect the grille and rear deck have thus far gone unheeded.

Definitely being discouraged is competition use of the Corvette though its name means "sloop of war." This stands in marked contrast to foreign sports car producers who try to get their first models into the hands of well known racing drivers to insure a racing reputation for the car. It is reported that Briggs Cunningham's order for two of the Corvettes for possible entry in the Le Mans race was quietly turned down at headquarters.

The odds are good that somebody will be able to pirate one of the war sloops out to an engagement before next year is over. But as it looks from here, the Chevrolet Corvette is more for showing than for blowing.

GM SPORTS CAR STYLING IN '54

Rumors still continue to fly that all of the GM sports cars with the exception of the Pontiac Parisienne will be built at some time or another. Tending to discourage this belief is the fact, not rumor, that styling of the GM line in 1954 will definitely follow the lines of the sports models.

The Cadillac for 1954 will feature the LeMans grille, wrap-around windshield, and modernistic angular sculpturing of the tail fins. The headlight bezel will be even more prominently frenched, giving the lower half of the body an even longer and lower line than heretofore. The corner post of the windshield will be well back toward the driver and extremely thin for better visibility. Horsepower probably will be around 225. Under experiment, reportedly, is a new V-8 using four valves per cylinder, without overhead cams. Output is not known.

Buick, like Cadillac, will go to the wrap-around windshield. Featured will be the Wildcat grille with extremely thin divided center bumper section to emphasize the grille. Fen-

ders will be higher with headlights once again utilizing the bezel of the Wildcat. The silhouette thus will be lower and longer with rear fender treatment departing from the Wildcat and going Pontiac to emphasize the longer, lower look.

Oldsmobile and Pontiac also will utilize the grilles and wrap-around windshields of the sports cars they displayed and will follow the trend to accentuated fender lines and lower silhouettes of the other GM products. Reportedly moving along on schedule is the Pontiac V-8 set for introduction on the 1954 models. The ohv powerplant is expected to weigh in at about 145 hp.

The new Chevrolet will have only trim changes. For '55 it is presently planned to feature a Ferrari-type grille, wrap-around windshield, a straight belt line with dropped fender, using the color panel to emphasize the fender line.

KAISER'S DKF-161

Still undergoing tests and modifications for production is the Kaiser DKF-161 sports car. Originally planned for June introduction, first models of the sportster are now hoped



The first production Chevrolet Corvette, General Motors' popular-priced Fiberglass sports car, comes off the assembly line

for by mid-August. Chances seem good that the car body may be offered on the Willys chassis utilizing the F-head engine late in 1954 or in 1955 now that KF has purchased the firm.

Latest reports indicate the Willys Motors line next year will include two Kaiser models, two Willys models, and one Henry J. The four-cylinder Henry J is supposed to be dropped, although the Six will be retained. Styling integration of the new firm's products can be expected to show up in 1955. Tooling problems now make a major switch this year rather doubtful.

CHRYSLER PRODUCTS IN 1954

The big changes in the Chrysler products for 1954 will be mechanical, although with Virgil Exner as new Chief Stylist, much time will be devoted to new styling. In addition to the new transmission which will be available on most Chrysler products, the Chrysler Firepower engine will go to 220 hp in 1954. The grille and chrome trim will be changed slightly, with a redesigned rear fender gravel molding lending a flashier appearance to the Chrysler. A wide strip of chrome running along the lower edge of the body serves to

(Continued on page 90)

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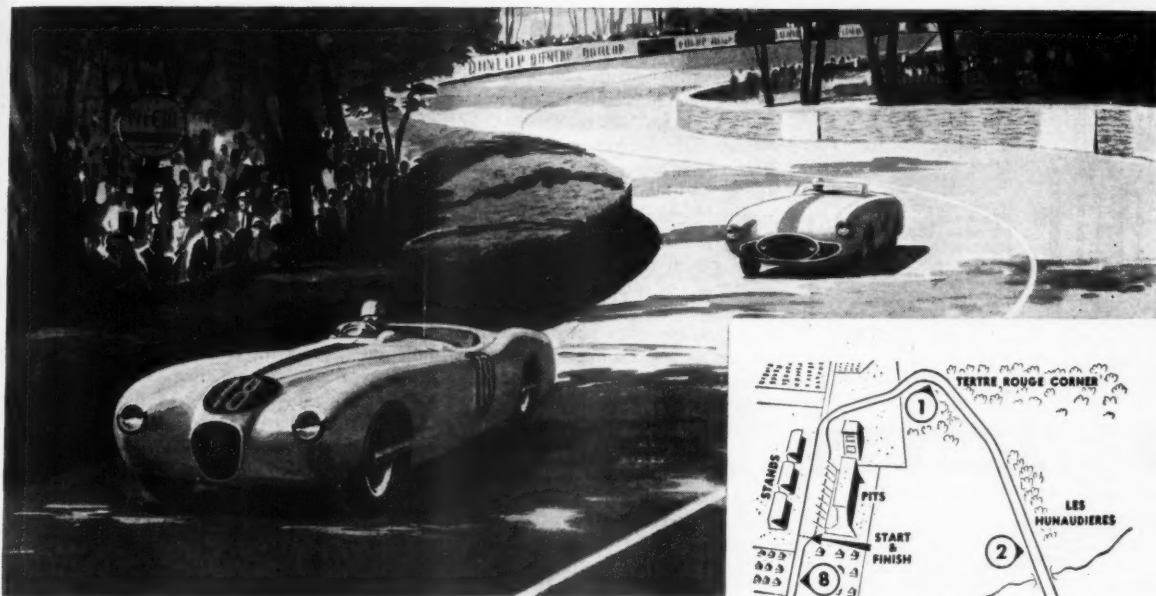
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CHAMPION SPARK PLUGS SUPREME AT LE MANS!



FIRST SEVEN CARS IN WORLD'S GREATEST ROAD RACE USED CHAMPIONS FOR DEPENDABLE POWER

The world's best drivers of the world's finest sports cars repeatedly bet their reputations on the absolute dependability of Champion Spark Plugs—and win!

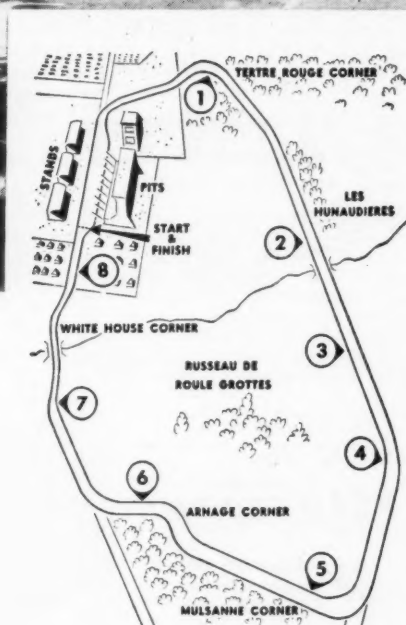
This world-wide confidence again was justified at the recent running of the historic 24-hour Le Mans (France) Road Race. Led by Tony Rolt and Duncan Hamilton who set a new Le Mans record of 105.6 m.p.h. for 2540 miles in a Jaguar, the first seven drove Champion-equipped machines:

- 1 JAGUAR** (Rolt-Hamilton) **2 JAGUAR** (Mass-Walker) **3 CUNNINGHAM** (Fitch-Walters) **4 JAGUAR** (Whitehead-Stewart)
5 FERRARI (Marzotto-Marzotto) **6 GORDINI** (Trintignant-Schell) **7 CUNNINGHAM** (Cunningham-Spear)

And on this side of the water, Champions again won at the only two internationally-recognized races held in the United States—the Indianapolis "500" where Bill Vukovich and 32 of the 33 entrants used Champions, and the Sebring (Florida) 12-hour endurance race won by John Fitch and Phil Walters in a Chrysler-powered Cunningham. This all adds up to the fact that your car, whatever its make, model or purpose, will perform better with Champions. Get a set—and get going!

CHAMPION SPARK PLUG COMPANY, TOLEDO 1, OHIO • WINDSOR, ONTARIO • FELTHAM, ENGLAND

September 1953



DEPENDABLE
CHAMPIONS
THE WORLD'S BEST SPARK PLUGS

Eleven

SAVE AT LOW FACTORY PRICES

TWIN HEADER SYSTEMS

by **ALMQUIST**

UP TO 15% MORE HP

AMERICA'S FINEST



EXHAUST HEADER SYSTEM relieves back pressure existing in present stock system. Greatly improves power, mileage & performance. Finest system you can buy. Beautiful DEEP MELLOW TONE. Complete with Headers, Extensions, Tailpipe, Brackets & 2 Steel Packed Mel-O-Tone Mufflers.

EASY TO INSTALL
 Ford & Merc, '35-'53.....\$46
 Ford or Merc Set, Less Mufflers.....\$36
 Chevrolet, '37-'53.....\$59
 Plym & Dodge, '42-'53.....\$59
 Oldsmobile, '48 & '49.....\$69
 Studebaker V-8's.....\$69
 Lincoln, Small '49-'51.....\$74
 Cadillac, '49-'51 (Hydro).....\$74

HEADER KITS

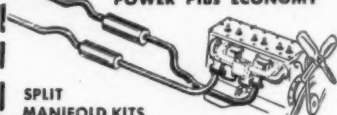
SAVE 50%. Pre-Fabricated Kit includes six 90° Bends, Collector Pipes, six Flanges, Gaskets & Easy Instructions for assembling your own headers! For ALL Fords & Mercs.....\$9.95
 (V-8 Kits for Olds, Stude, Chry, etc.).....\$12.95



Twin Dual

DUAL SETS

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SPLIT MANIFOLD KITS

For Chev, Plym & All 6 & 8 c.v. Inline Cars
 SAVE 50%. Kit includes Split Manifold Head Pipe, Dual Side Tailpipe, Mounting Brackets, & E-Z Instructions. Easily welds or bolts to present manifold. Uses Stock or Hollywood Mufflers. Complete...\$14.95

TWIN-TONE "STEELPAC" MUFFLERS

Finest for duals! Single, any car.....\$6.95
 DUAL MUFFLER KITS for Ford or Merc—Less Mufflers & T.P.....\$9.95

SPEED EQUIPMENT



Save By Mail:

- Dual Manifolds.....\$12.95
- V-8 Racing Head, ea.....\$12.95
- Famous Cams.....\$29.50
- Water Injectors.....\$5.95
- Exhaust Silencers.....\$3.95
- Values for All Cars!

1954 CATALOG

JUST OUT... Huge New 5-Color Picture Catalog!

1000's of Famous Power, Economy, Racing Parts—Custom Accessories for all cars! Also "Souping" & Customizing Tips, DISCOUNT Certificate, etc. SEND 25c

CHECK Items Wanted & Clip Ad: ☐ Ship C.O.D.
 Enclosed find \$.....
 Specify Car & Year.....

ALMQUIST ENGINEERING

Dealers Wanted Milford 94-T, Pa.

Editorial



WHAT WE ARE DOING with this issue makes us extremely happy, grateful, and very humble. Happy because we're starting our fifth year of publication; grateful because you helped make it so; and humble because we depend on you to continue publishing YOUR magazine.

Four years ago (seems like much longer when we remember all the headaches we've had during that time), some persons were in a predicting mood. We remember one in particular, an advertising agency account executive and public relations man for one of the major automotive manufacturers. We had showed him our first issue, of which we were naturally proud, and asked for his comments, criticisms, and suggestions. These he gave, along with the warning remark that we could not publish a magazine about cars for the general public. "They just won't buy it. Furthermore, every magazine that started out as a consumer publication later wound up being a trade journal. You might as well face facts."

Naturally, this had somewhat of a sobering effect on us. Had we been wrong in our assumption that the public *would* buy such a magazine? *Will* we wind up being a trade journal?

Well, the answer to the first question has already been answered and is being answered more strongly with each succeeding issue. This month we're distributing over 700,000 copies! Next month there will be even more. The average motorist *wants* such a magazine—of that we're quite sure.

As to the second question about winding up by being a trade journal, that is absolutely ridiculous. Our policy with **MOTOR TREND** *has*, and always *will be*, to provide a magazine for the car owner. Trade journals are for manufacturers and dealers. They can read **MOTOR TREND**, too, *but* we're not writing for them.

Next month, we'll have even more for you. Effective with that issue of **MOTOR TREND**, we are incorporating *Auto Sportsman*. This will not change the policy of the magazine; instead coverage will be expanded. Where it was necessary to treat sports and foreign cars lightly because we felt there was another magazine devoted exclusively to that subject, MT can now cover this in the same manner that it would any other subject.

MT's basic policy will still be to cover

the automotive field for the car owner, the average motorist, in an easy-to-read form, not too technical, yet not so simple as to insult one's intelligence. Wherever and whenever any trends are indicated, these will be pointed out to you.

Mainstays of **MOTOR TREND** will continue to be road tests of stock American production cars, "Spotlight on Detroit," "Classic Comments," feature articles on the most important automotive subjects of the moment, trends in design and development, analyses of new cars, human interest features, "how to" articles on various subjects, "Accessory Trials," "European-Newsletter" (with all of the latest news from the entire world), and exposé-type articles.

Now there will be even more. Direct pick-up departments from *Auto Sportsman* that we feel have a definite place in **MOTOR TREND** are: "Pit Stop," "Tips on Touring," "Auto Sportsmen," and "Clothes for Motorists." The first one (in case you're not familiar with *Auto Sportsman*) has to do with a concise reporting job of sports car activities on the domestic scene. If you want to know who's running some interesting equipment, or who finished where at a road race, you'll read about it here.

"Tips on Touring" will include such things as better ways to pack your clothes for trips, what to take along when you travel, how to get roadside aid. With it we are including a two-month calendar of events for every state that has something going on during that period.

"Auto Sportsmen" will be about the not-so-well-known sportsmen on the automotive scene. It will not be the personality sketch in the usual sense, but rather will delve into *what* that particular personality is intrigued about in cars and *why*.

"Clothes for Motorists" (tentative title) will show you the newest in clothes designed specifically for motorists or adaptable for motorists because they will make you more comfortable, will wrinkle less while driving, or because they're just plain fashionable for you as a motorist.

If there's something you think we've missed, something for which you have a particular preference, let us know. We like to hear from you. And we like to print what YOU like.

—Walter A. Woron

Motor Trend

EDITORS' IMPARTIAL TESTS PROVE:

New Self-Charging Battery Outlasts, Outperforms Others 221%

A few months ago, we started producing a new battery which we frankly believe to be many years ahead of its time. When we announced that this new battery developed 15 amperes more power than other batteries and would automatically bounce back to life again and again after being deliberately and completely discharged, technical editors of leading magazines raised their eyebrows.

When we added that we had named it the *Lifetime Battery* because of its *life* (meaning exceptional power) and the *time* it would last (3 to 4 times as long as ordinary batteries), and that we guaranteed it for *six years*, these editors were understandably doubtful, to put it mildly. One publisher, in fact, refused to accept advertising for this battery until what he then considered to be our extreme claims were carefully tested.

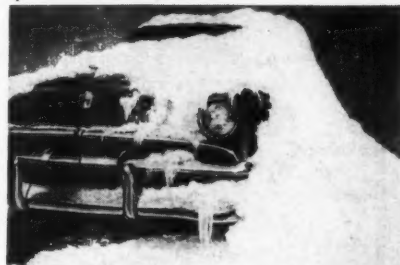
One of the editors said: "Let us test this battery, any way we see fit. If it does what you claim, it's news our readers will be interested in. If it's no good, our readers will be interested in that, too, and that's the way we'll write the story." We said "go ahead" and they took a standard *Lifetime Battery* off the production line and went to work.

You may have read the result of the first test in a famous automotive magazine (name on request). Using two well-known batteries (possibly the best-known high-quality batteries in the world) for comparison, they first ran the *Lifetime Battery* down completely and let it re-charge itself automatically. They repeated this test 43 times the first day, then compared its strength with the other two batteries. Results: the *Lifetime Battery* was 204% stronger than the strongest of the other two batteries. They discharged the *Lifetime Battery* another 20 times, allowing it to re-charge itself automatically each time, and compared all batteries again: the *Lifetime Battery* was now 213% stronger than one battery, 221% stronger than the other! Next, they put a punishing 300-amp load on the *Lifetime Battery*; it survived that in good shape. So they repeated the self-recharging test again and finally concluded: "... unprecedented life expectancy... remarkable recuperative characteristics... outperformed the others in every respect and by a comfortable margin... an outstanding value."

The editor of another magazine (name on request) heard about the tests and asked to "give the thing a *real* test, one that would burn up the average battery." We gave him the *same battery* and challenged him to "finish it off." He installed it in his own car and drove the car on the *battery alone*, shifting gears as he would normally, until his "fingers were sore from holding the starter key... I hate to admit it, but I was outlasted by a battery."

Still another editor wrote: "... definite battery improvement... greater recuperative power, greater initial output... obviously high quality."

During independent tests in Alaska and the U.S., the Lifetime Battery was intentionally discharged under sub-freezing conditions, recharged itself automatically & started car at once!



Engineered for Cold Climates

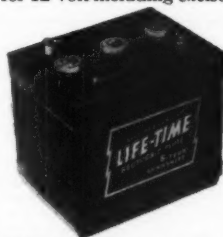
Soon after the *Lifetime Battery* went into production, we selected a few dealers in northern U.S. and Alaska, shipped them a few batteries and waited to see how the dealers and the public would react. Our Alaska dealer told us that before presenting it to his customers, he was going to give the battery an Arctic test: discharge it completely then freeze it at 30 below zero for 72 hours. Result: the battery had recharged itself and immediately started the car. Immediately we received a telegraphed order from Alaska for \$6,043 worth of *Lifetime Batteries*!

6-Year Guarantee Saves You Up to \$107

The average deluxe battery lasts 1.4 years at a typical cost of \$25.00, or \$107.00 for a 6-year period. This arithmetic is making sense to people who are tired of throwing money away on batteries that just won't hold up. We believe it will make sense to you, too—particularly since the *Lifetime Battery* you buy now can easily be transferred to your new car whenever you trade in.

12-volt and 6-volt Available

Here's more arithmetic that makes sense: the *Lifetime Battery* sells in the U.S. at one price for all cars: \$29.95 for 6-volt, \$34.95 for 12-volt including excise tax.



Supply Limited: Order Today by Mail!

Although plant facilities are being expanded, supply is still limited. If your dealer can't supply you, order direct by mail from the factory; we pay freight.

CONTINENTAL MANUFACTURING CORPORATION (Marketing Division, Consolidated Engineers)
Dept. MTB-9, Washington Boulevard at Motor Avenue, Culver City, California

Dealers NOW BEING APPOINTED TO HANDLE DEMAND

Dealerships are now being awarded to take care of demand generated by \$1,000,000 advertising campaign plus articles in national magazines. Write today for full information, including reprints of editors' tests and case histories from present dealers.

Continental Manufacturing Corporation, Dept. MTB-9
Washington Blvd. at Motor Ave., Culver City, Calif.

Please ship *Lifetime Battery* at once:

- ☐ 6-volt (\$29.95 including tax)
☐ 12-volt (\$34.95 including tax)

for

(make, model, year of car)

- ☐ I enclose cash, check, or money order: you pay shipping cost.
☐ I enclose \$5 deposit, will pay balance & shipping costs C.O.D.

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Address _____

City _____

Zone _____ State _____

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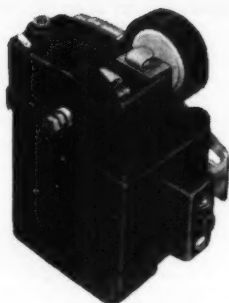
{ Just a few have been listed. If your city is not included, }
{ write to the factory for name of dealer nearest to you. }

ALABAMA	
Birmingham	Greenberg Auto Parts Co., 1131 3rd Ave., N.
CALIFORNIA	
El Cerrito	Automotive Specialties, 1441 San Pablo Ave.
Hayward	Vic Hubbard Motor Parts & Speed Equipment Co., 21532 MacKland Ave.
Los Angeles	Lee's Speed Shop, 1143 E. 14th St.
San Francisco	J. F. Dixon Co., 1835 S. Hope St. H. G. Makelim Magneto Repair Co., 1583 Howard St.
COLORADO	
Denver	Piile Bros., Inc., 748 Broadway
DISTRICT OF COLUMBIA	
Washington	Stricks Automotive, 1816 14th St., N.W.
FLORIDA	
Orlando	Bailey Motor Equipment Co., 78 N. Garland St.
GEORGIA	
Atlanta	Smith Tire Co., 155 Decatur St., S.E.
Macon	Viaduct Armature Works, 11 Courtland St., N.E. Jack Mann Co., 675 Third St.
IDAHO	
Idaho Falls	Art's Muffler Shop, 253 First St.
ILLINOIS	
Chicago	AM-R-CO Distributing Co., 1323 N. Western Ave. Belpark Auto Parts Co., 3021-33 N. Cicero Ave. George J. Carter, 6616 N. Chicora Ave. (SALES REPR.) Clark Speed Equipment Co., 4866 N. Milwaukee Ave. Grancor Automotive Specialists 5150 N. Western Ave. Grebel Auto Specialty Co., 5519 W. Chicago Ave. Andrew Johnson Co., 1662 W. Division St. National Ignition, 2002 S. State St. North End Auto Supply, 3610 N. Western Ave. Ogden Motor Parts Co., 3765 Ogden Ave. Universal Automotive Supply, 4011 W. Washington Blvd. Van Bergen & Greener, Inc., 1619 N. Hoyne Ave. Bill Von Esser, 3307 W. Irving Park Rd. McNally Carburetor & Electric Service, 1015 Chicago Ave. Midwest Car & Boat Corp., 1019 Davis St. Valley Auto Parts Co., 13 S. Third St. Kewanee Auto Supply, 113 E. Second St. West Suburban Auto Parts, 511 W. Lake St. Moline Engine Service, 3227 23rd Ave. Ace Auto Stores, 405 S. Adams St. Electrical Testing Co., 300 Knoxville Ave. Peterson Battery & Electric, 311 S. Winnebago St. Adams Electric Service, 622 Spring St.
Evanston	
Geneva	
Kewanee	
Maywood	
Moline	
Peoria	
Rockford	
Springfield	
INDIANA	
Indianapolis	R. L. Bilger, 311 W. High St., Hicksville, Ohio (SALES REPR.) Jack Kidwell Electric Co., 1331 N. Capitol Ave.
KANSAS	
Wichita	Hall's Speed Shop, 1205 E. Lincoln
KENTUCKY	
Ashland	Clarke Auto Electric Co., 219 19th St.
Louisville	Ellingsworth Auto Electric Co., 1005 E. Broadway
MARYLAND	
Baltimore	Capitol Speed Parts, 3032 S. Hanover St. Stephen Seth & Co., 876 Park Ave.
MASSACHUSETTS	
Boston	Harvey Sales & Service Co., 1375 Boylston St.
MICHIGAN	
Detroit	Detroit Racing Equipment Co., 20181 Conant
Grand Rapids	Northwestern Auto Supply Co., 1101 Division Ave., S. Reme's Auto Parts, 2601 S. Division Ave. Lovejoy, Inc., 159 Portage St. Ken-Russ Speed Equipment, 907 E. Genessee Boyer-Foster, Inc., 22950 Harper
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Saginaw	
St. Clair Shores	
MINNESOTA	
Minneapolis	Auto Electric Supply Co., 1011 Harmon Place
MISSISSIPPI	
Hattiesburg	Saphie Service Parts Co., 414 E. Pine St.
MISSOURI	
Kansas City	Becker-Florence Electric Co., 1611 Oak St.
St. Louis	L. & J. Parts & Service, 4500 S. Kingshighway
MONTANA	
Billings	C. & J. Parts Service, 5 N. 35th St.
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North Platte	Platte Automotive, 2709 W. 12th St.
Omaha	Zenith-Nixon Carburetor Co., 2602 St. Mary's Ave.
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Camden	Eastern Speed Parts, 1012 Federal St.
New Brunswick	Harry K. Page, 1429 Haddon Ave. California Speed & Sport Shop, 298 Jersey Ave.
NEW YORK	
Buffalo	Kar Motor Rebuilders, Inc., 1159 Jefferson St.
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Akron	Austin Ignition Co., 56 N. Union St.
Canton	Carburetor Sales & Service, 820 Tuscarawas St., E.
Cincinnati	Hooper Ignition Service, 2724 Woodburn Ave.
Cleveland	Midwest Racing Equipment, 13907 Miles Ave.
Columbus	Stromberg Sales & Service Co., 3330 Superior Ave., N.E. Air Brake Service Co., 684 N. 4th St. Alfred E. Kayes, 1550 Grenoble Road (SALES REPR.) Tom's Muffler Shop, 3027 Indianola Ave. Hollywood Auto Accessories, 1440 Wayne Ave. Foster Auto Parts Co., 408 N. Main Hurst Service, 1433 Camp St. Mather Distributing Co., 3977 Monroe St.
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Tulsa	Square Deal Auto Parts, 1630 E. Pine
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Portland	Magneto Equipment Co., 1111 S.E. Grand Ave.
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Philadelphia	Krechmer Motor Parts, 5110 Walnut St. Laeco Products Co., 1530-32 Parrish St. Motor Ignition Co., 1526 Fairmount Ave. W. R. Strunk, 925 Greene St. Joe's Carburetor & Ignition Service, 868 Providence Rd.
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Scranton	
SOUTH CAROLINA	
Columbia	Thain's Auto Service, 1519 Taylor St.
Greenville	Battery & Electric Co., 300 Buncombe St.
Naval Base	Robison's Speed Shop, 134 Chestnut Ave.
SOUTH DAKOTA	
Rapid City	Hoseth Auto Electric Co., 324 St. Joseph St.
TENNESSEE	
Chattanooga	Honest Charley Speed Shop, 1100 McCallie Ave.
Knoxville	The Muffler Shop, 629 N. Gay St.
Memphis	Montgomery Auto Supply Co., 230 Union Ave. Union Auto Electric Service, 1017 Union Ave. Berlin's Auto Trim Supply Co., 1610 West End Ave.
Nashville	
TEXAS	
Dallas	Rus-Tex Company, 4319 Belmont Ave.
Lamesa	Shepherd Battery & Electric, 213 N. First
New Braunfels	Louis Silver's Auto Parts, P. O. Box 207
Port Lavaca	Auto Parts & Machine Co., 114 N. Guadalupe
UTAH	
Salt Lake City	John Leis Automotive Machine Co., 845 S. Main St.
VIRGINIA	
Chase City	Tucker-Bevell Motors, 5th & Main
Hampton	Hop's Place, 17 Armistead Ave.
Norfolk	Sutton Electric Corp., 767 Granby St.
Richmond	The Kline Co., 2725 W. Broad St.
Tazewell	Eldredh Motor Service, North Tazewell
WASHINGTON	
Seattle	E. F. Oman Co., 2212 Fourth Ave.
Spokane	Motor Supply Co., 1202 W. First Ave.
Tacoma	Wright's Automotive Service, 710 Commerce St.
WEST VIRGINIA	
Beckley	Fred Bailes & Co., Box 1310 (SALES REPR. ALA., GA., KY., MISS., N. & S. CAR., TENN., VA. & W. VA.)
Charleston	Eastern Garages, Inc., 411 Elizabeth St.
Clarksburg	White Electric Co., 903 W. Pike St.
Huntington	Hoffsted Magneto & Electric, 27 W. 4th Ave.
WISCONSIN	
Kenosha	Gordon Auto Replacements, 2801 Roosevelt Rd.
Milwaukee	Midwest Speed & Power Equipment Co., 2206 W. Walnut St.
Sheboygan	H. H. Berg & Son, 1217 S. 8th St.
ALASKA	
Anchorage	Dahquist Auto Supply
CANADA	
Windsor, Ont.	Stewart McLaren Corp., Ltd., P. O. Box 481 (SALES REPR.)

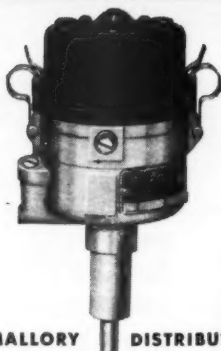


Mallory

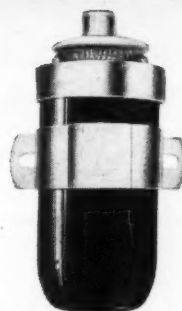
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MAGSPARK TRANSFORMER



MALLORY DISTRIBUTOR



MALLORY "BEST" COIL

The very finest in automotive ignition has been offered by MALLORY for over a quarter of a century. Always years ahead in design and workmanship, a whole generation of drivers who KNOW and WANT performance have "Mallory equipped" their cars. A complete system is available in varying price ranges suited to the individual taste and degree of investment.

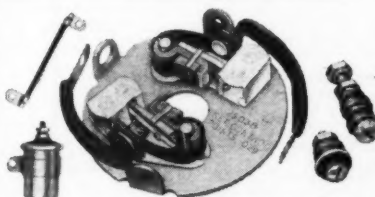
The MALLORY DISTRIBUTOR of today is the result of over twenty-five years of constant research and development. It is the finest in its field and when installed with the MAGSPARK TRANSFORMER, the latest and most revolutionary addition to the Mallory line, performances are achieved which amaze the most discriminating owners. The MALLORY COIL was named the "BEST" of a long line of fine coils by its designer, and is still rated "BEST" by thousands of satisfied users.

For the owner who desires a limited investment, a complete line of dual-point conversions is available for most cars and trucks as shown below. Mallory assemblies give an advantage over other makes because Mallory STABILIZED Breaker-Points are used and conversions are available for use with the Magspark transformer as well as the single-primary conventional type coil.

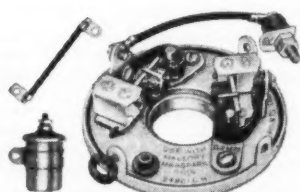
Mallory conversion plate, assembly No. 25050 complete with STABILIZED BREAKERS and Condenser. Can be used with the Mallory Magspark Transformer, as well as with the single-primary ignition coils of the conventional type and the Mallory Best Coil.

CHEVROLET	1933-53
NASH RAMBLER	1950-52
NASH STATESMAN	1948-53
PACKARD, 6 Cyl. (Delco)	1941-47
CHEVROLET TRUCK	1933-53
INTERNATIONAL TRUCK	1941-53
GMC TRUCK	1938-53
WHITE TRUCK, 6 Cyl. (Delco)	All
MACK TRUCK, 6 Cyl. (Delco)	All
FARM TRACTOR, 6 Cyl. (Delco)	All

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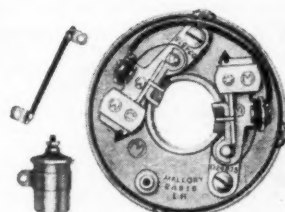
ASSEMBLY NO. 25050



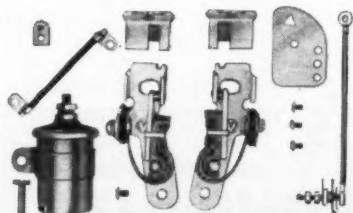
ASSEMBLY NO. 24990

BUICK (Roadmaster-Super)...	1950-52	PACKARD (8 Cyl. Delco)...	1950-53
BUICK (Special).....	1950-53	PONTIAC (8 Cyl.).....	1950-53
CADILLAC (V-8).....	1950-53	STUDEBAKER (V-8).....	1951-53
OLDSMOBILE (V-8).....	1950-53		

Assembly No. 24990 Ball-bearing dual-point advance plate can be used in the above cars, the same as our Assembly No. 25000. However, it will not work with the conventional type or the Mallory Best Coil. It is especially designed to operate the circuits of the Mallory Magspark Transformer and must be used only with this transformer. Assembly No. 25000 Ball-bearing dual-point advance plate is designed for use with the single-primary ignition coils of the conventional type and the Mallory Best Coil.



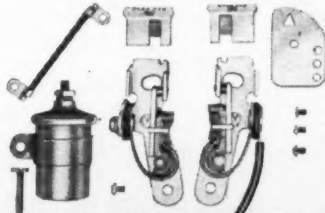
ASSEMBLY NO. 25000



ASSEMBLY NO. 25060

Ford V-8 and Mercury, 1949-50-51-52-53
Lincoln, 1950-51
Ford Trucks, 8 Cyl., 1948-49-50-51

Assembly No. 25060 can be used in the above cars, the same as our Assembly No. 24900. However, it will not work with the conventional type or the Mallory Best Coil. It is especially designed to operate the circuits of the Mallory Magspark Transformer and must be used only with this transformer. Assembly No. 24900 is designed for use with the single-primary ignition coils of the conventional type and the Mallory Best Coil.



ASSEMBLY NO. 24900

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(This skirt fits all 2-door and convertibles)



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FORD-1949-52 MERCURY-1949-50
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CUSTOM FORD CENTER BAR For 1953 Models

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FORD 1946-47-48 . . . **\$14.95 pr.** ☐



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A complete set of four
\$3.25 set ☐



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GAS *Turbines*

By Maxwell Boyd

IN JUNE OF 1952 the Rover turbocar roared through a mile-long trap at the fantastic speed of 152.69 mph! Very little has been heard of the car since then. Was it just a flash in the pan? Did the government (British) take it over? Was it "too good"? Or does it have too many bugs for everyday use?

To find the answers to these and many more questions which we had in mind, MOTOR TREND made a study of the known gas turbine cars, talked with manufacturers, with the following result—the full story.

First of all, you can dispel from your mind any thought that the gas turbine car will be seen on *any* highway in any quantity for the next few years. The turbocar has definitely arrived and it certainly has the power unit of the future, but it is still very much a laboratory experiment at the moment, for a myriad of technical reasons.

Socema Turbocar

The little-publicized Socema turbocar is one such experiment. Although the sleek car stirred up a lot of interest at the Paris Salon last year, its manufacturer (Societe de Constructions et d'Equipements Mecaniques pour l'Aviation, from which its name has been derived) has kept the car classed as an experimental model. Despite the fact that the car is being used as a four-wheeled laboratory, it does take on the appearance of a successful attempt at turbocar production. The Gregoire-bodied coupe is reportedly capable of speeds near 125 mph; fuel consumption at that speed was said to be six to nine miles per gallon of kerosene. The 2805-pound Socema is powered with a 100-bhp engine which weighs only 170 pounds.

British Rover Turbocar

The British Rover car is of prime interest to the entire automotive industry, for it has been publicly demonstrated to be practical in many respects. The Rover turbocar is an open model, looking like an ordinary Rover 75 sedan with the top cut off at the waistline. In fact, the chassis, suspension, steering, and rear axle are indeed standard 75 units. The gas turbine itself is behind the driver, enclosed, with two air intakes and exhaust outlets near the top of each side facing upwards. Under the hood are the oil cooler and fuel tank.

The Rover turbine engine works on exactly the same principle as other engines of the same type, but in order to allow the unit

to fit in a car body, the combustion chamber has been placed above the power turbine instead of in line with it, a more general procedure.

Briefly, the engine works like this: Air is drawn into a compressor and is then passed to a single combustion chamber, where it is ignited with kerosene fuel that is sprayed in. The hot, expanding gases flow from the combustion chamber, activating a turbine rotor disc that is on the same shaft as the air compressor rotor. The gases pass from the blades of this rotor onto the fins of the power turbine. The power turbine, through reduction gears, turns the automobile's driveshaft. Their work done, the gases are then expelled through exhaust outlets.

The difference between a gas turbine of this type and the jet engine used in aircraft is this: in the former the gases have expanded fully and are cooled considerably by the time they reach the exhaust; in jet propulsion the aircraft is moved by the expansion of the gases in the turbine; they are forced out at some 1300 mph and 500° C. Although the exhaust is warmer than that of an ordinary car and has more force behind, the turbine car leaves no searing trail of flame behind it.

The turbine rpms are fantastically high: at 152 mph during the timed test, the compressor turbine ran up to 40,000 rpm. The ratio between the power turbine and the propeller shaft was 4.875 to 1, with a final drive of 3.275 to 1, giving an overall ratio of 15.965 to 1.

The Rover car has only two pedals, an accelerator and brake—no clutch—as there is no gearbox. Acceleration is progressive from standstill to full speed, and is accompanied by a steadily rising whine—the only noise.

What Are the Prospects?

Will the turbocar be better than the piston-engined car? Eventually, yes, for progress is inevitable. It has already been demonstrated that gas turbine propulsion has great possibilities. On the other hand, it is not until the turbocar becomes a proposition for the ordinary motorist, a substitute for the internal-combustion-engined family sedan, that it can be said to have succeeded completely.

Judging from the present progress, the turbocar may well be put on the road in a high-price bracket in three to five years, but it is doubtful if it will become a general commercial proposition for another eight to 10 years. This period depends to

The gas turbine engine, installed in "mobile test benches," has aroused world-wide interest. People no longer ask, "Will it become a reality?"; instead, the question is, "How long until turbocar becomes a commercial proposition?"

GAS TURBINES continued

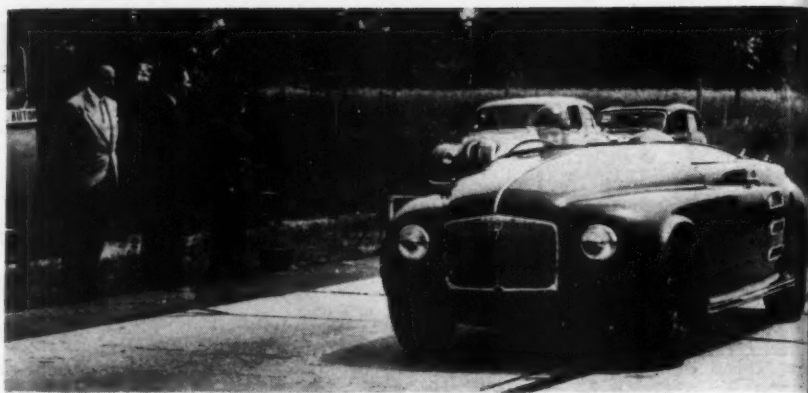
a great extent, of course, on the rate of development. If the car industry of the world, and particularly Detroit, turned their vast resources to turbine research, then the time lag would be far shorter. However, industry seldom devotes its time and money to revolutionary experiments until it is convinced that it will get that money back from the final result.

Now, although Britain has been leading the world in the initial development of the turbocar, it seems more than likely that the U.S. will assume the lead in the near future. Only the British Rover Company has made any real progress in gas turbines for automotive purposes, and, comparatively speaking, Rover is a very small concern with limited resources. Moreover, several U.S. concerns have government contracts for the development of small gas turbines for military purposes. A great deal of work is in progress on gas turbine propulsion from every aspect.

Boeing Gas Turbine

The most widely publicized turbine experiment in the U.S. has been the application of the Boeing Model 502 gas turbine in a 55,000-pound truck-and-trailer unit. The turbine-powered Kenworth truck has been in operation for more than two years on Washington State highways, carrying simulated loads up to the state's legal limit of 34 tons.

Developed by the Boeing Airplane Company under U.S. Navy sponsorship, the Model 502 turbine engine has no radiator or cooling system, and only one-tenth as many parts as a comparable gasoline or diesel engine. As a result of these advantages, it is at least 3000 pounds lighter than present diesel truck engines of equal output and occupies only 13 per cent of the space required by a diesel engine. The Boeing engine is only 40 inches long, 22 inches high, 23 inches wide, and weighs a mere 230 pounds, as installed in



The Rover turbocar holds the distinction of being the first turbine-powered car to be tested publicly. It reached a speed of 152.69 mph on the Jabbeke highway in Belgium

the Kenworth truck. The turbine's maximum brake horsepower is 200 at 3000 output shaft rpms and its continuous horsepower rating is 175 bhp at 2750 shaft rpms. Various fuels used in the truck include diesel oil, gasoline and kerosene.

The Model 502 engine has been adapted for use in Navy landing and personnel craft, helicopters, light planes, and 2.5-ton, 6 x 6 military vehicles. Regardless of the obvious practicality of their engine, Boeing has no immediate plans to enter either the truck or passenger car field with the 502 gas turbine engine. The engine was installed on the Kenworth truck simply as a practical test-bed, for the company felt that day-by-day highway use was the quickest means of bringing out any of the engine's weaknesses. As a result of more than 40,000 miles of testing the engine on this mobile test bench, Boeing's engineers have been "substantially reducing the turbine's fuel consumption and, at the same time, increasing its reliability and service life."

Indianapolis Turbocar

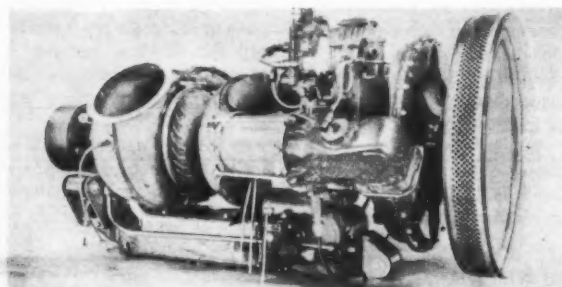
Another development on the American turbine scene is a proposed turbo-powered Indianapolis-type race car. The builder's efforts have been balked temporarily by

several questions put forth by the technical committee: What is the temperature of the exhaust? What is the exhaust volume? What is the chemical content of the exhaust? The answers are: (1) temperature, 1200° F; (2) large volume; and (3) exhaust is of a nature to cause excessive tears in the eyes of anyone within range of the fumes. Thus, before the turbocar is seen on the U.S. racetracks, these problems must be circumvented.

Detroit's Experiments

Detroit's entrants into the turbocar field have been kept tightly under wraps, but it is generally believed that both General Motors and Ford will reveal their objects of discretion sometime next year, probably in the form of a sports model. The "Gas Turbine Section" of Ford's new research laboratory has released information on at least two gas turbine designs, but company engineers point out that high costs and low economy will, at least for the present, hold back turbocar adaptation in the U.S. GM's gas turbine, to be built by the Allison Division (aircraft engine producers), will be an adaptation of turbines already in use in other kinds of projects.

(Continued on page 74)



Boeing's well-tested, 230-pound Model 502 gas turbine puts out a maximum 200 bhp, with a continuous power rating of 175 bhp at 2750 output shaft rpms. Slightly smaller than the Rover engine, its height is 22 inches, width 23 inches, length 40 inches

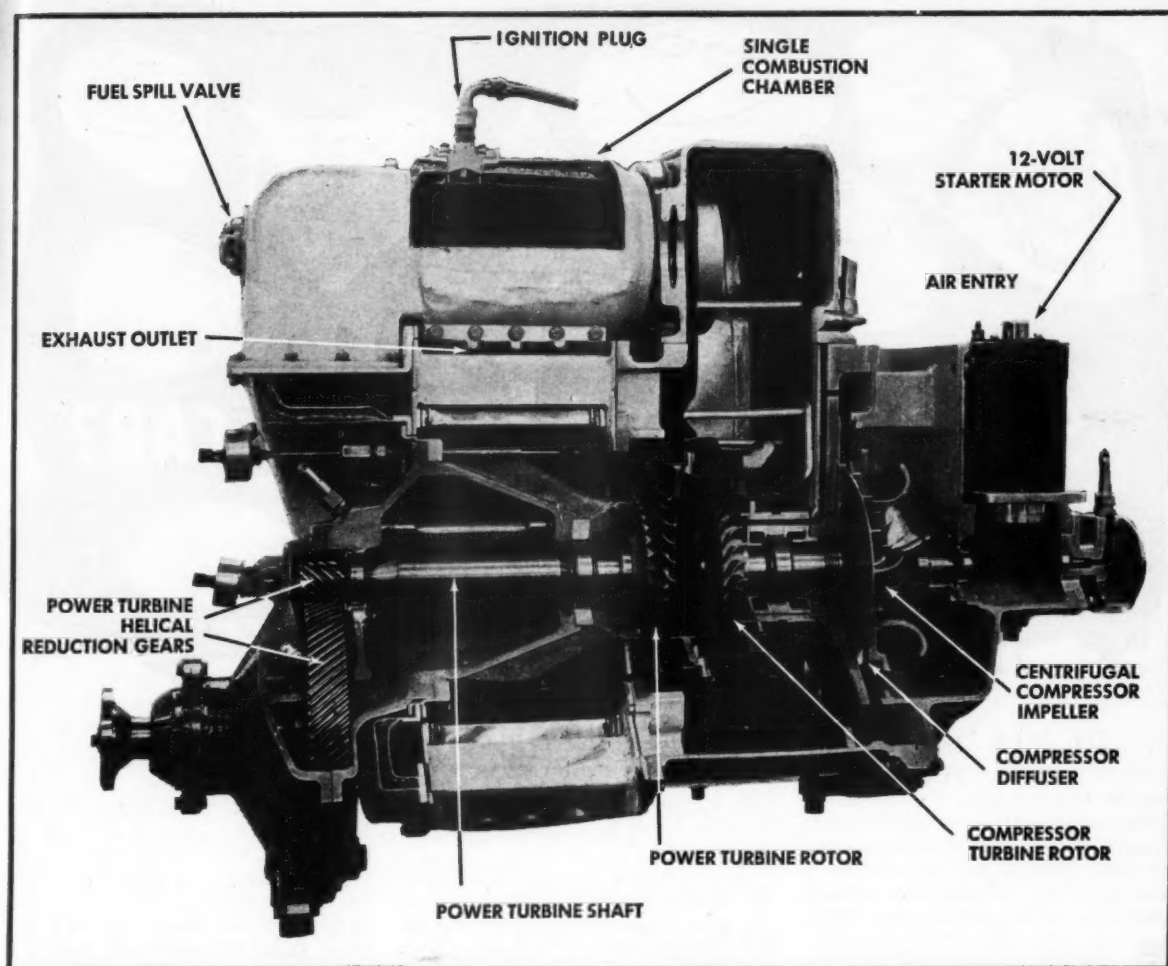
Eighteen



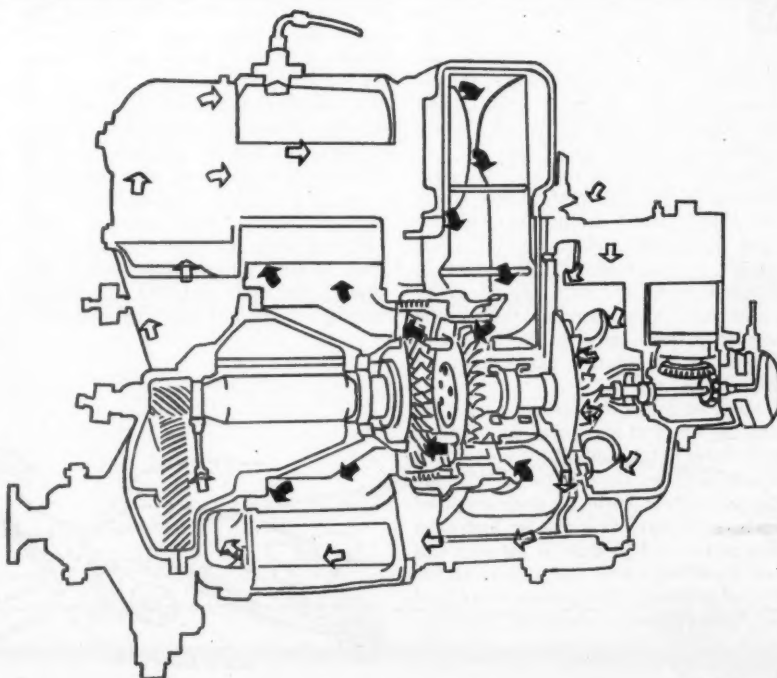
What the turbine can do in the way of space-saving is illustrated in this photo of the Boeing-powered Kenworth tractor, and the diesel-powered Kenworth on the right. The installation of the turbine engine lessens the weight of the truck by 3000 pounds

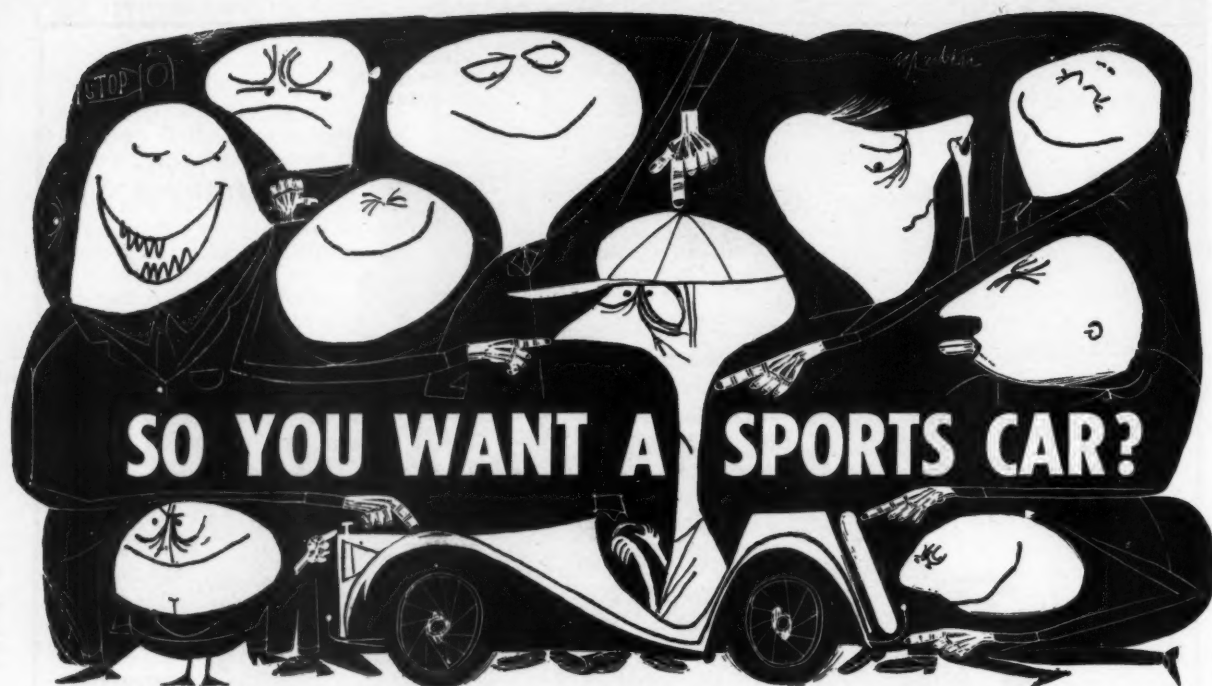
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Britain's "Jet I" Rover turbocar is powered by the gas turbine shown in the cut-away drawing above. Dimensions are: length 48 in., width 30 in., height 30 in. The engine's output is rated at over 200 bhp, with a compressor turbine speed of 40,000 rpm at maximum power; the power turbine turns over at 30,000 rpm. In the drawing at right, the white arrows show the path of incoming air to the centrifugal compressor impeller, and its forced path through the engine to the combustion chamber. There, it is combined with the fuel (coming in from the injection nozzle at the upper left), ignited, and (as shown by the black arrows) passed on to the compressor and power turbine rotors. Before the superheated exhaust gases are released through the car's upper-rear exhaust grilles, they are diffused through a series of baffles, which reduce the temperature and velocity of the gases. The Rover's turbine is started by a 12-volt starting motor (mounted in a vertical position on the right side of the engine), which turns the engine over at about 6000 rpm; the starter disengages automatically when the engine hits 10,000 rpm.





BY NICK ALEXANDER | Illustrated by Marvin Rubin

NOTE: Every so often a writer does an article that might offend certain hypersensitive persons. This is such an article. If it does offend anyone, all we can say is that person has forgotten how to laugh. And if so, we're sorry for him.—Editor

SO YOU'D LIKE to own a sports car? One of those flashy red or green jobs that go snorting down the highway, turning up their fenders as they whip on by? Before you lose your head, as the expression goes, be calm, relax, think a while. And to help you think, let me tell you my experiences with my sports car.

Nine chances out of 10, you won't start with one of the high performance sports cars. Why? Mostly because they cost too much. So what do you buy? As far as this country is concerned, there's nothing in the small field, small either by size or by pocketbook. You therefore follow the popular pattern and buy an MG or a Singer. That's what I did—bought an MG, that is.

I'll never forget the first time I got behind the wheel of my sports car. (Sounds easy, doesn't it, but of all the contortions you have to go through to do it! Open door as wide as it will go, place one hand on back of seat, raise one leg and twist foot so that it will make it between seat and wheel, twist knee out of joint to follow foot, at same time placing other hand on steering wheel, sit down and draw other leg into car. Let me warn you. If you're bothered by obesity, or even if you've

been accused of drinking too much beer, forget it! You'll never make it without a shoe horn.)

As I was saying, I'll never forget. After two or three lessons, with suitable coaching by an enthusiast, I finally got into the car without throwing my back out of joint.

I won't bore you with the details on how I learned to shift, except to say that if you like a Slushomatic (which I don't happen to) it won't be the easiest thing in the world for you to learn. There's a bit of a trick in co-ordinating the clutch with the throttle position, all the time watching the tachometer to see how many rpms the little sewing-machine engine is turning up.

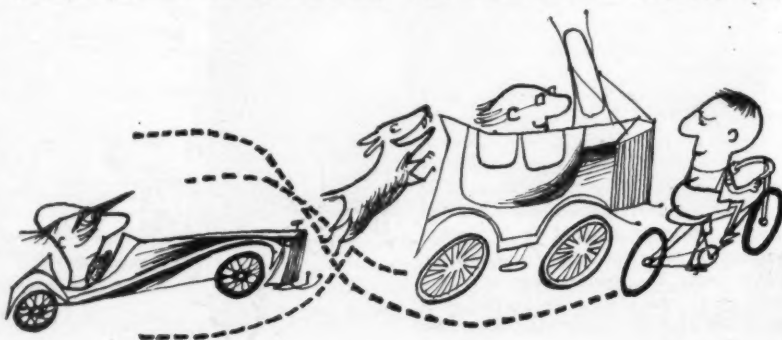
So, after you get initiated into driving the sweet beauty, what happens? You're whipping along at what you think is a good cruising speed (your tach's indicating 4000 rpm, isn't it?), the wind is clawing at your face over the windscreen,

and you feel like virtual king of the road. Nothing can stay with you in the red beetle. Then what happens? Out of the corner of your eye (your left one, because you're a real enthusiast and you've invested your hard-to-come-by cash in a non-export model with right-hand drive) you see the nose of some "foreign-looking" behemoth moving up even with you. This exhilarates you, for you know how to show him.

Down goes your foot, hard, on the throttle. The engine really begins to stitch, and you slowly inch ahead.

You're feeling great. You've got his number.

Next you hear a terrific roar, a screeching of rubber being ripped from tires. You stare vacantly through your windscreen at the back end of a Model A Ford. "Of course," you say, in rationalization, "it wasn't stock. It couldn't be." But,



you may have your lingering doubts.

Then, at some later date, you have the opportunity of leading some softly sprung Detroit barge through a sharp 90-degree turn. In the rear-view mirror you watch the stunned expression on the driver's face as he watches you go through flat, while he has to slow down and creep through. You feel wonderful—until you're through the turn. For then, you're swept up by the suction of his car as it storms by, while you're still winding up tightly in third gear.

And it isn't too long before you notice that drivers of stock American cars are out to get you—by whatever means come to their feeble minds. Run you off the road, crowd you into the curb, push you down the street into the back end of a truck. Oh, it's great fun—if you have eyes in the back and sides of your head, and are deft enough to hold and thread a needle with only one hand.

But to counteract this comes the compensation of a wave from every other sports car owner who is driving a car in your class (caste system, you know). Tired of waving at just other MG owners, you begin hoping against hope that a Jaguar owner will deign to touch his beret with a cupped hand. If the owner of a Porsche or an Aston-Martin even cocks an eyebrow at you, you feel you've been "accepted." You're in such rapture you weave an erratic course down the road. "Some day," you think, "that'll be me." But for now you're still satisfied with your "lowly" MG.

Through all this, when you pull up at a stop light, you'll find people staring at you and your machine. You can see the wonderment on their faces as they say to each other, "What kind of car is that? Must be one of those foreign jobs." You'd like to answer, "Yeah, lady, furrin'."

"How come he's driving from the wrong side?" "Cause you like it that way, that's why. Besides, it's easier in traffic—honest."

"How can he stand sitting out in the open on a day like this?" Whether the sun's shining, whether it isn't; whether it's cold, whether it's hot.

"How can he see? It's so low." You can't, but you make a good pretense, although you *do* have to crane your neck around the car in front of you.

And if these weren't enough, next come the stupid remarks like: "See the little car!" This from doting mothers holding up their babes-in-arms.

"Why don't you get a horse?" This always goes over big, especially when it comes from kids on bikes.

And then, nothing except a benevolent smile.

Now don't get me wrong. There are people who are actually interested in your car. But, by the time you run across them you don't have much patience with humanity. When they ask, "How many miles to a gallon?" your retort is, "How many gallons do you get to a *mile*, mister?" After a while, though, you become calloused and you feel it's about time that you accept it. Your next step is to try to make converts of them. When people ask foolish questions, you sense it, smile, and drive off. But when you know the other person is really interested, you give him a straight answer.

What do they ask you? Well . . .

"How big's the engine?" About half the size of your engine.

"How many cylinders?" Two less than yours.

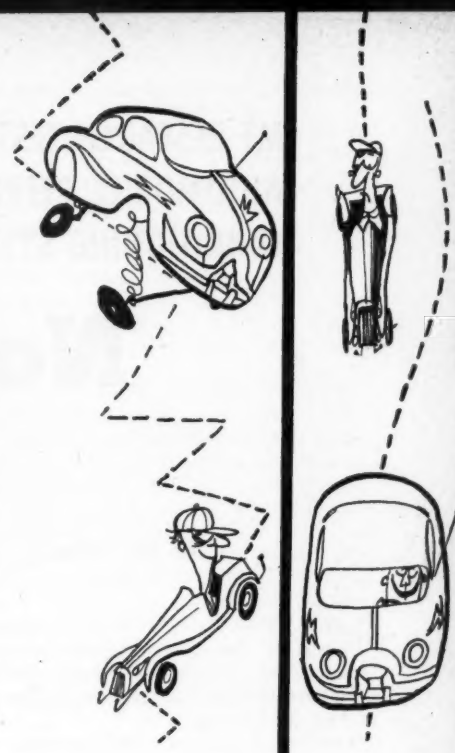
"How many gears?" One more than yours, without overdrive.

"What'll she do?" Ten more miles top than yours.

You see, this way, if they don't know their own car, you've got them stumped. Besides, it impresses them with the fact that you not only know your car, but theirs as well.

While all this is happening, you can have a lot of fun at signals. You can *really* show them what kind of car you have by jumping away at a signal first, if you're fortunate enough to catch the other driver asleep.

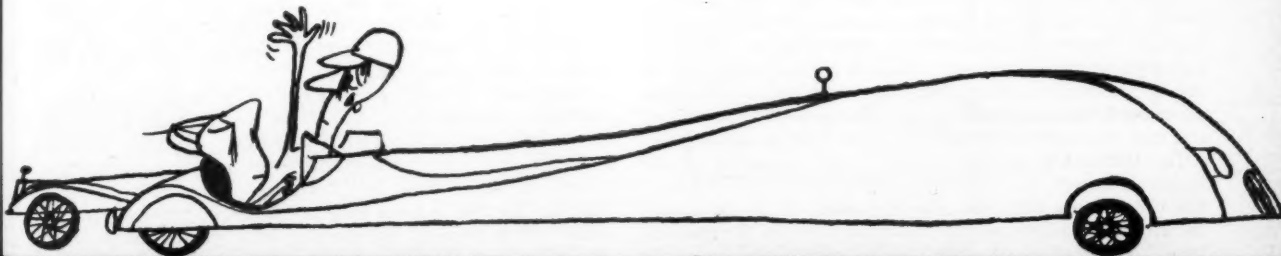
Of course, if you drive a sports car like this very much, you'll need servicing. Even if you don't, you'll still need servicing. And when you do, you'd better be prepared to pay more than you would with a stock car. Simple items like headlight bulbs. Should be easy to get, wouldn't you say? Yeah, but who carries 12-volt bulbs? That's only for trucks and trailers. Need a battery charge? Easy. All you have to do is have it charged twice, six volts each time. Course, it might, and usually does,



cost twice as much. A tune-up, you say? Simple, if you know where to go not to get gypped by some character who doesn't know anything about high-performance or foreign engines in the first place.

Oh, it's a great joy to own a sports car. Top down in all kinds of weather, the feel of the wheel in your lap, the camaraderie among sports car owners, the wonderful way you thread your way through traffic or wind around the ribbons of road lacing through hill and dale—all this is so great. So what if your car won't outdig a stock Chevy? What if you don't like being associated with the yokels who wear berets, scarves, and pom-poms? What if you have to work on your car every weekend to keep it running, and have to use more spit and polish than you ever have before to keep it clean? It's still fun.

What do I own now? You'd laugh if I told you it was still an MG, wouldn't you? Well—go ahead and laugh!



MT RESEARCH TESTS THE MAJOR AUTOMOBILE REFRIGERATED AIR CONDITIONING SYSTEMS

Now you can keep

By Jim Lodge

NOW, NEAR THE HOTTEST time of the year in many parts of the country, the number one accessory for car comfort is air conditioning—not an open side vent, or outside air filtered through your car's ventilating system, but *refrigerated* air conditioning.

Because more and more manufacturers are offering air conditioning as optional equipment on their '53 models, MT Research felt the time had come to find out if the refrigerated automobile was just a novelty, or a sound investment in luxurious motoring. The most important of our many questions about air conditioning was: "Does it really relieve the discomforts of hot-weather driving?" For an impartial answer, we tested a cross-section of cars equipped with air conditioning, under varying uncomfortable weather conditions. The tests were conducted primarily to find out if there was any real advantage to air conditioning, if any particular system had any outstanding qualities, and to learn just how each system worked.

After sitting in the sun on a hot day, our **Cadillac** test car's interior seemed like the inside of a blast furnace. However, within two or three minutes' driving time, with the air conditioning system in operation, the temperature inside the car had reached a comfortable level. After the initial heat had been dispelled, we could adjust internal car temperature to as low as 30° cooler than the outside temperature.

In mild weather, best results were obtained by turning off the COOLER control, flipping a toggle switch to the VENT position, and regulating the amount of ventilation by the use of two BLOWER controls. Even with the air conditioning turned off, however, it became somewhat chilly in humid, 70° weather. For maximum cooling in hotter weather, cool air can be brought in through the vents in the package shelf by turning the cooling control lever to the right (on), and turning the blowers to their full-on position. The vent in the package area controls the amount of incoming air, while the blowers control the velocity. The air conditioner control regulates the temperature.

Under ordinary traffic conditions, there was some variation in temperature inside the Cadillac with different engine speeds. Cadillac recommends driving in D3 range when in traffic, for higher engine rpm and greater cooling. If it's necessary to sit in the car at idle speed for any length of time, the manufacturer recommends that you place the transmission selector in neutral and race the engine slightly to keep the interior comfortable.

The **Oldsmobile** air conditioning system is similar to the Cadillac's, except for some slight variations in construction. The Oldsmobile's ducts run along the ceiling of the car, above the windows (Cadillac owners can choose either of the two systems). A pair of two-position switches control the output of the Oldsmobile's air conditioning system. One switch allows

high-low blower speeds, and the other makes possible cool-to-cold temperature settings. We chose cool-low combination (minimum output) to keep the Oldsmobile interior comfortable at cruising speeds in 90 to 95° weather. In traffic, even with a cold-high setting, increased car temperature was noticed; however, the interior temperature of about 80° was still much more comfortable than the outside temperature.

We tested the '53 **Lincoln's** ability to provide maximum passenger comfort on a warm (75°), rainy day. The following checks were made to find the best operating conditions: First, all the windows were closed, and the front quarter wings opened. Result: very hot and very uncomfortable. Again, the same conditions were maintained, but this time the car's vent ducts were opened. This brought little relief to the wilting occupants. The next step was to turn the blowers on; this made the interior somewhat more comfortable, but it was still "sticky." The car became more comfortable when the vents were closed and the air conditioning blower was set at half-open. At this point, we had not turned on the cooling system, but more air was being circulated. With the blowers full-on (the cooler was still turned off), the interior was fairly comfortable: the passengers could feel a good volume of moving air even with the car stopped. With the windows still up and the blowers and the cooler turned half-way on, the car was very comfortable. The air circulated well, and the air conditioning system was removing the moisture from the interior. Extreme comfort resulted from keeping the cooler control half-on and turning the blowers full-on. Any further adjustment of the system would depend on very high outside temperatures, and on whether you wanted to keep the internal temperature of the car very low indeed.

The Lincoln has no outside air intakes to mar the appearance of the car. Its recirculating air conditioning system uses the same air over and over again. One or two of the car's vents could be opened to admit fresh air; this would make a slight difference in the inside temperature, or cause the compressor to work harder to maintain the pre-set temperature. Like other systems, the Lincoln's air conditioner works best in traffic if engine rpms are kept high, and it is suggested that you use D3 range in slow-moving traffic.

Chrysler's Air-Temp system, which can be installed on **Dodge**, **DeSoto**, or **Chrysler** cars, uses intake scoops on the outside of the body to draw in fresh air. The air is de-humidified, filtered, cooled, and circulated through the passenger compartment from a grille on the package shelf. After the car has been sitting in the sun, the high internal temperature can be brought down to about 85° in less than two minutes. From there, it levels off to the middle 70s. Under less severe conditions, the system's automatic temperature control will bring the temperature down to

COOL

a level of about 70° to 72° when stabilized. These leveling-off ranges are adjustable to the owner's desires. Chrysler's is one of the easiest to operate, for it is controlled by a single knob on the dashboard. This switch regulates blower speed, and thus controls the amount, rather than the temperature, of the cool air coming into the car.

These tests showed us that all the installations are similar in application; they all operated satisfactorily, and they will all do a good job of keeping people cool in warm weather. However, they are not yet highly perfected. Many problems still face the manufacturer, as well as the owner, of an air conditioned car. Let's see what these problems are, and what can be done.

How It Operates

To understand the problems fully, you must first know the components of the air conditioning unit, and how it operates. The following describes a typical unit:

A belt-driven compressor mounted in the engine compartment starts the cooling cycle. Its job is to raise the pressure of a refrigerant vapor (the same type used in commercial and home cooling systems) to a level where it can be easily condensed at high temperatures.

A condenser is located in front of the car radiator to take advantage of the great volume of incoming cool air. The condenser, a fin-and-tube type heat exchanger, removes enough heat from the vapor to turn it to liquid. A further step, a throttling valve, reduces the pressure of the liquid, at the same time reducing its boiling point.

The third major element, the evaporator (located in the trunk and combined with a blower unit), contains the cooling coils of the air conditioner, and is similar to the cooling system of your refrigerator at home. Here the liquid refrigerant, now at a low temperature, receives heat from the warm air within the car and once again becomes a vapor. The vapor, still at low pressure, returns to the compressor, where the pressure is raised and the cycle is repeated.

Heavy compressors used in current refrigeration units are large, and under severe conditions rob the engine of three to four horsepower (not a great loss to larger engines). Of the two units in use, Chrysler's "Air-Temp" unit is the bulkiest, using a four-cycle reciprocating compressor. General Motors' "Frigidaire" utilizes a smaller two-vane rotary-type compressor developed from the electric "Meter-Miser" used in home coolers.

The easiest way of driving the refrigeration compressor is by belting it in some way to the car engine. The variable operation of an automobile engine presents one of the biggest problems in refrigeration. Changing compressor speeds results in the inability to produce sufficient refrigeration at low engine speeds.

and in excess capacity at high speeds, rendering the evaporator useless because of icing.

Magnetic drives and clutches, hydraulic drives with control valves, and separate gasoline-driven engines have all been tried. It is not known now what devices other makers will use, but Frigidaire has come up with a metering solenoid valve to offset the variable compressor speeds and resulting cooling capacities. This valve is dependent upon the return of warm air from within the car for its operation. Normally open, the valve is automatically closed when warm air activates a thermostat and allows full compressor capacity to be applied to the evaporator. This gives results equal to direct physical control of the compressor.

Aside from power loss through belt-driven accessories, another and more serious engine problem arises. Because of the need for cool air, the condenser must be in front of the radiator for maximum air volume. Frigidaire units place the entire condenser in front of the lower half of the radiator. In the Chrysler system, the condenser is divided into two parts, with one section (drawing about one-third of the needed capacity) in front of the car radiator, and the other mounted where the radiator dust pan is usually located. Air passing through the grille flows down and through the lower condenser. This should ease, but not eliminate, engine heating.

Because of their many functions, the evaporators in present air conditioners are quite bulky and so have been placed in the trunk against the rear seat, where they take up a minimum of luggage space.

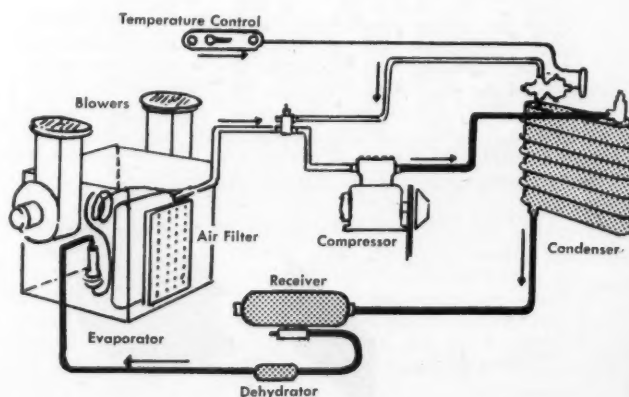
The evaporator, while it must absorb heat and remove moisture from the air in the car, has the job of producing cool air with the help of blower fans. This task requires a careful study of air distribution and the physical characteristics of the human body.

The Human Factor

Engineers have found a "summer comfort zone," with 78° and 50 percent relative humidity at the middle point. This is a satisfactory human comfort condition for the majority of people. It was also found that an air velocity of 25 feet per minute passing over the body is tolerable for the average person. Naturally, these conditions will vary among people and correction can be made for differences by manual cooling control within the car.

The cold facts concerning the human comfort problem can best be explained by starting with a term called air delivery. The interior of an automobile is very small when compared to a room in your house or a railroad passenger car. The problem is to produce an air conditioner that has sufficient

(Continued on page 72)



Lincoln's recirculating system shows no outside air intake. For diagrams of other systems, see Motor Trend's March issue

What is

By Robert Scollay

MR. JONES WAS MAD. Mr. Jones had had a bad day at the office. His secretary had walked out in a huff at four o'clock. An hour before, the office boy had chosen to bump into a dignified gentleman, one of his best customers. This would not have been so bad had not the office boy been juggling a large bottle of ink at the moment. The results on the customer's clothing, the office boy's job, and Mr. Jones's peace of mind were disastrous. Mr. Jones decided to go home.

Mr. Jones got in his car. Sixteen blocks later, on Main Street, Mr. Jones's anger had reached the frothing stage. Red signal lights had stopped him at 11 intersections. He turned off Main at Elmgrove and was only two blocks from home when he was stopped again. This time it was an accident with the usual complement of two irreparable cars, curious spectators, and a great many cops, all of which held him up for another 10 minutes.

All this was too much for Mr. Jones. He was a taxpayer and he decided to do something. He had screamed to his neighbors about the dunderheads who timed those signals on Main Street. He had also expressed an opinion on that intersection two blocks from home—why didn't the city do something about the possibility of accidents there? All they needed was a couple of stop signs!

Next day, Mr. Jones followed up on his decision to do something about his traffic problem. He took time off from the office and after a minor research project which involved going to several offices at Town Hall, he finally located the office of the City Traffic Engineer. What follows is a transcription of an actual conversation between Mr. Jones and the Traffic Engineer, except, of course, that "Mr. Jones" has another name. We will omit his apoplectic introduction.

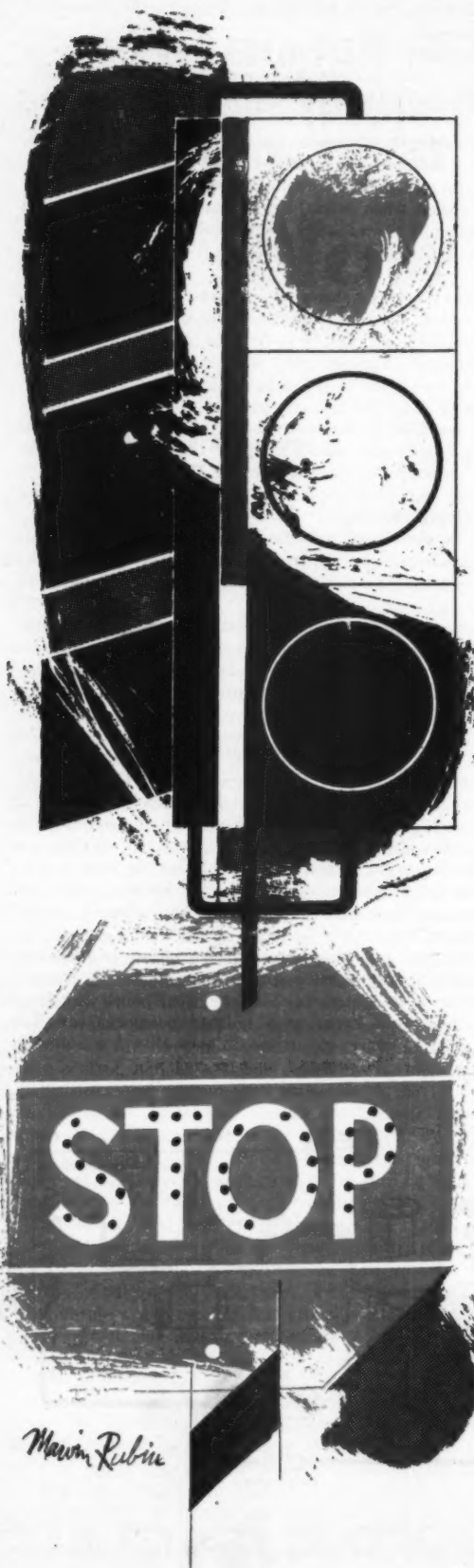
Traffic Engineer: Glad you came up, Mr. Jones. I'll be glad to show you around and let you see what we are trying to do. Ask any questions you like, I'll be glad to answer them.

Mr. Jones: Okay, I'm just sore enough to take you up on that. What's that map over there with the colored pins in it? I know you don't have any salesmen on the road—do those pins mean guys who will vote for you?

Traffic Engineer: No, Mr. Jones, I'm afraid that the pins in that map represent people who would never vote for me even if I were a candidate for elective office instead of a civil service employee. Those clusters of pins represent a lot of people who have had serious traffic accidents. Most of them are dead.

Mr. Jones: Well, if you know where this stuff is going on, why don't you do something about it?

Traffic Engineer: We are doing something about it. I'd like to show you what it is. Before I explain what we are trying to do, I'd like you to look at some other things in the office. Here is my traffic flow map, which was constructed from traffic counts on the town's major streets. It shows how the traffic is concentrated. Over here is our accident location file. There's a report in it for every pin in the accident spot map. We analyze the contents of these reports to find out if any engineering changes can reduce accidents.



Marvin Rubin

Traffic Control?

Why don't they ever do anything about those traffic jams? Fact of the matter is, they do

Mr. Jones: That sounds logical to me, but why don't you get on the ball and clean up these bad spots like that intersection two blocks from my house?

Traffic Engineer: I wish it were as easy as you make it sound. If you will step over here to the map for a minute, I can show you 50 intersections which need traffic signals. I have only enough money in my budget for 25 of them this year, and it is quite possible that pins will continue to be stuck in the remaining 25 spots.

Mr. Jones: Your mention of traffic signals is another thing that brought me up here. Why don't you time the signals on Main Street? I get stuck at almost every light.

Traffic Engineer: Main Street should be a freeway without traffic signals, but until money is available we will have to get along with them. We've done the best we can on Main Street with what we call progressive signal timing. Perhaps you have noticed that you can drive to your office in the morning at 28 miles per hour and get the green light at every signal. If we could do the same for you in the evening we would, but we are limited by the fact that the cross streets are not the same distance apart and we have heavy cross traffic at D Street, which demands a greater "go" interval than Main Street. Perhaps you've noticed that you can travel in either direction on Grand Boulevard at 30 miles per hour without missing a light. Grand Boulevard has blocks of almost equal length and the cross traffic at each intersection is about average. I can show you our signal timing diagrams on these streets if you would like to see them.

Mr. Jones: Well, okay, but what about that intersection near the house, where we need stop signs or something?

Traffic Engineer: The time has come for me to ask you a question. Would you like to stop at every one of the eight streets you cross on Elmgrove after you leave Main Street? Of course you wouldn't, but I can show you requests from your neighbors for a stop sign at each of these intersections! We only want to install stop signs where they are really needed. You can see from my accident spot map that there may be many places where we need them. There is another consideration: signs are relatively inexpensive to begin with, but every sign we erect means that we will have to inspect and replace it at regular intervals. That could snowball into a lot of money. My meager budget would soon disappear. The only solution we have is to put up signs where we *know* they are most needed.

Mr. Jones: I'm beginning to see you have financial troubles, too. What else do you have to do on this budget of yours?

Traffic Engineer: I must do a lot of surveying and research to anticipate where people will live and work, requiring new roadways. We must also patch up obsolete intersections with what we call channelizing islands, which make them safer and a little less congested. We spend a good share of our budget on pavement markings which will help both vehicular and pedestrian traffic by making it safer and more orderly.

Mr. Jones: Looks like you have your work cut out for you. How many other fellows like you are in this business?



FELIX ZELENYA

That accident you saw the other night is now a colored pin on a large map in your local traffic engineering department

Traffic Engineer: Not nearly enough. Most state highway departments have a traffic engineer. All cities of over 50,000 population need a complete traffic engineering department. However, this is not even the usual case. Fortunately, the traffic engineer is beginning to come into his own now that more of our cities are realizing the necessity for scientifically controlled traffic.

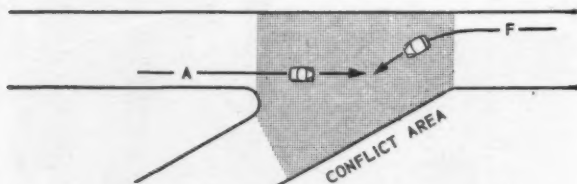
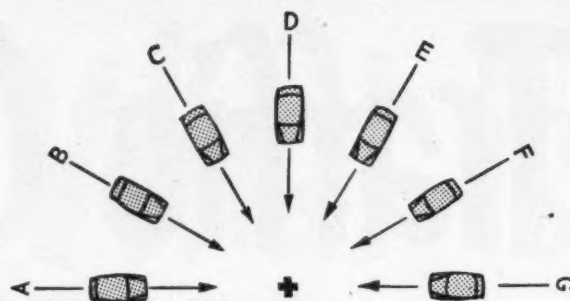
Mr. Jones: Looks to me, as a businessman and an automobile driver, as if you could stand a little help with this problem. What can I do?

Traffic Engineer: A lot of things, Mr. Jones. Both you and your neighbors will help if you place our traffic problems on a businesslike basis instead of an emotional one. We need your support and understanding. We need your suggestions, and—though most of your fellow citizens don't believe it—we are deeply interested in your complaints. I have not been able to explain all our activities to you. This will, however, give you an insight into our problems and yours. We can lick the traffic problem only through close cooperation and understanding.

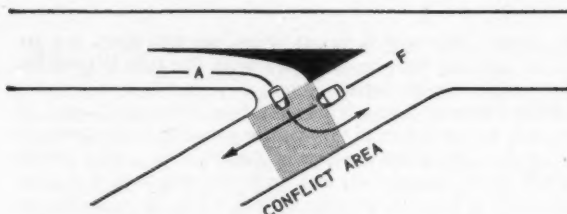
Next month, another important phase of "Your Traffic Problem" will appear.—Editor

Traffic Control (Continued)

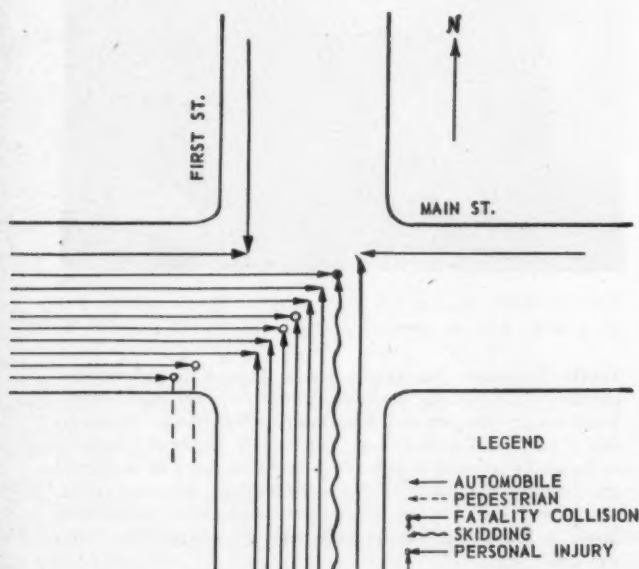
This diagram represents the principles which traffic engineers follow in designing new intersections or when channelizing existing intersections. If you are the driver of car A, you can estimate B's speed quite accurately because you are both traveling in nearly the same direction. As you approach other cars in the diagram (C to G), it becomes progressively more difficult to estimate their speed. The worst possible situation is reached when you are involved in a head-on collision with car G. Simple, yet it is a vital tool in traffic studies



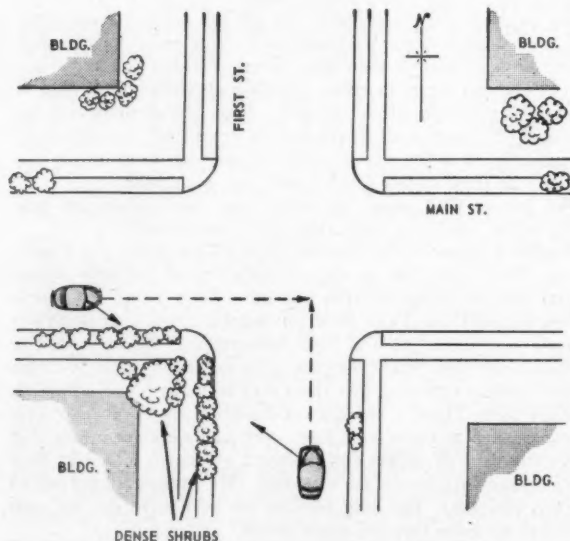
This is the type of "Y" intersection which is rapidly becoming out-dated. The large pavement area suggests a game—"guess where the other fellow is going." As the driver of car A, your chances of dodging car F are not the best. The problem here is to control the flow of intersection traffic by means of re-routing



Here is the same "Y" intersection after the traffic engineer has added a channelizing island. As you, in car A, now approach the driver in car F, your chances of a collision are much less. In addition, the conflict area has been reduced so that you now know where he intends to go. This is a common solution today



What happens when you have an accident? The diagram shows one of the ways in which a traffic engineer will use information contained in your accident report. The paths of cars involved in accidents at this intersection are charted. Dotted lines are pedestrians. The white circles at the arrows indicate a serious injury, and the black dot means someone was killed. Obviously something must be wrong at the southwest corner of the intersection. It is the traffic engineer's job to make a further study so that necessary remedial measures can stop the accidents



Here a complete study is made of the intersection and the surrounding area diagrammatically. The cause of the high accident rate at First and Main Streets is now obvious. As you approached the intersection from the south or west, you had little chance of seeing the other driver approaching from the west or south because of the building and shrubbery on the southwest corner. Stop signs on either First or Main Street represent a possible solution to the problem. Of course, not all high-accident-rate intersections are as easy as this to solve

DE SOTO

Page 28

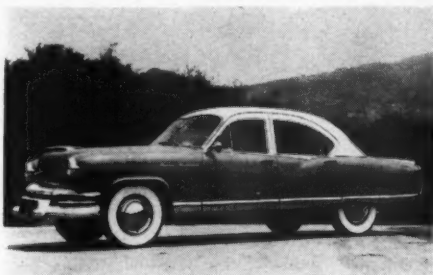


THE CAR AT A GLANCE

	FAIR	AVG.	GOOD	EXCELLENT
ACCELERATION Standing start 1/4 mile 30-60 mph			X	X
BODY WORK			X	
BRAKES Stopping distance average @ 30, 45, 60 mph			X	
EASE OF HANDLING			X	
FUEL ECONOMY Average @ 30, 45, 60 mph	X			
INTERIOR			X	
RIDE			X	
ROADABILITY			X	
TOP SPEED			X	

KAISER

Page 30



THE CAR AT A GLANCE

	FAIR	AVG.	GOOD	EXCELLENT
ACCELERATION Standing start 1/4 mile 30-60 mph		X	X	
BODY WORK		X		
BRAKES Stopping distance average @ 30, 45, 60 mph				X
EASE OF HANDLING		X		
FUEL ECONOMY Average @ 30, 45, 60 mph				X
INTERIOR			X	
RIDE			X	
ROADABILITY			X	
TOP SPEED	X			

STUDEBAKER

Page 32



THE CAR AT A GLANCE

	FAIR	AVG.	GOOD	EXCELLENT
ACCELERATION Standing start 1/4 mile 30-60 mph	X	X		
BODY WORK	X			
BRAKES Stopping distance average @ 30, 45, 60 mph			X	
EASE OF HANDLING			X	
FUEL ECONOMY Average @ 30, 45, 60 mph				X
INTERIOR	X			
RIDE			X	
ROADABILITY			X	
TOP SPEED	X			

MT Research Staff - Walt Woron, Jim Potter, Pete Molson, Bob Hoepner, Fred Bodley, Jim Lodge

ROAD TEST SECTION



Handsome interior design for '53 is conservative, very comfortable. Plastic-topped panel has wood-grained metal finish

AN ENGINE TEN years ahead of the rest of the car" was what MOTOR TREND Research said about the 1952 DeSoto V-8. It is also what we think about the 1953 model.

True, the DeSoto has been changed this year; it has an entirely new body, a new grille, new trim, and a newly designed interior. This face-lifting should mean a really new car, yet as far as the average buyer is concerned, the DeSoto is essentially the same as last year. While the changes introduced in the '53 DeSoto are far from spectacular, we believe that they do help to make the DeSoto an attractive, comfortable car, and one of the best family cars in its class.

The '52 DeSoto made news with its powerful new V-8. Has the engine been altered in the '53 models? The excellent Firedome V-8 is unchanged. When introduced last year, it held a coveted title—leader of the industry in road horsepower per cubic inch displacement. Since that time, many engine developments have appeared, but the DeSoto remains high on the list in this efficiency rating. The Firedome engine develops 160 bhp at 4400 rpm. By comparison with many other engines, the DeSoto's 7.1:1 compression ratio is low. A check of this year's road test acceleration records shows the DeSoto is above the average of its class through most of the speed ranges. This good acceleration is largely a product of the Firedome's high torque (250 pounds-feet).

The DeSoto is one of the largest cars in its class. Is it hard to handle? Car size and handling ease have little connection with each other in the DeSoto's case. The car measures nearly

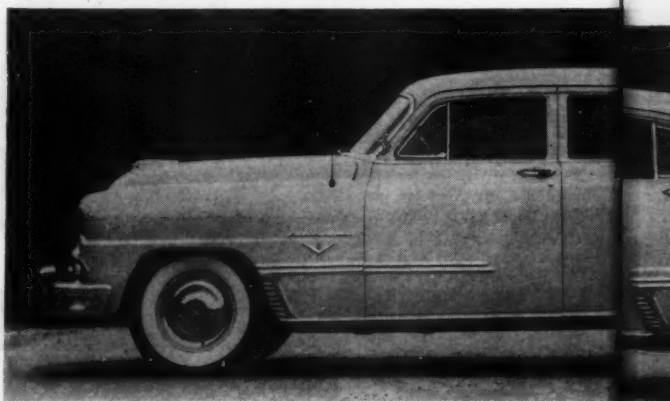
Twenty-eight

DESOTO

A desirable family car

Comfortable and luxurious, the DeSoto also has an engine with high-performance characteristics

Photos by Jack Campbell



Motor Trend

AN MT RESEARCH ROAD TEST REPORT

18 feet from bumper to bumper, but this length restricts handling ease only when you try to park the car in a tight space. When equipped with Tip-Toe Shift and Fluid-Torque Drive, power steering and power brakes, the 4120-pound DeSoto is one of the easiest cars of its size to drive. Effortless power steering (available on all models for \$177) lets you feel you're driving a motor scooter instead of a two-ton automobile; the power-assisted brakes need only a feather-light touch to bring the car to a quick stop, and in stop-and-go traffic it isn't necessary to use the clutch unless you wish to shift into Low or REVERSE. The DeSoto's steering wheel position (in relation to seat height) adds much to driving ease, and the size of the wheel and the diameter of the rim make the wheel comfortable in the driver's hands. The wheel requires only $3\frac{1}{2}$ turns lock to lock, adding to the steering ease with the power unit.

Is it a good road car for all-around driving? Yes, thanks in part to power steering. Power steering absorbs all normal wheel resistance; on soft shoulders, for example, the driver can sense some drag on the car, but feels no pull on the steering wheel. The DeSoto's reaction coming out of streetcar tracks is good; there is little body action (tendency to whip in or out of the tracks), and the car's response to the steering wheel is quite good. The steering does not feel mushy in tight corners at any speed, but some steering correction is required in cornering. However, once accustomed to "telephone dial" steering, even the most critical driver will find the DeSoto one of the easiest-cornering cars on the road.

The DeSoto's rear end will not break loose on washboard roads until car speed has reached 40 mph. On a sharp, paved test curve, the rear wheels did not start to slide until the car's speedometer registered 60 mph (actual speed slightly over 50 mph). There was slight vibration in the body and in the steering wheel on rutted roads at speeds between 40 and 50 mph; on normal road surfaces, there was slight wheel vibration at 85 mph, but no wheel shock on any road surface, regardless of car speed.

Does the DeSoto ride smoothly and quietly? The DeSoto's combination of Oriflow shock absorbers (mounted vertically in front, slanted in rear), front coil springs, and leaf springs in rear is nothing revolutionary in suspension principles; however, it provides this car with steadiness, smoothness, and a well controlled ride. The DeSoto took normal road dips in its stride, showing no excessive body movement and little bounce. The car regained its normal riding level after a single rebound, regardless of the severity of the dip or the speed at which it was taken. The DeSoto did not bottom (travel the full length of its springs) on any of the test dips, but we feel that if it *did* bottom under extreme conditions, there would be no sharp jolt or loss of control. On a choppy test road, the DeSoto was steady at all speeds up to 50; at that point, it began to feel "light," as if the rear end would break loose or become unsteady, but as its speed increased, the car settled down nicely. On this test

road, body vibration was noticeable from 20 to 40 mph, but it was no worse at higher speeds than at 20 mph.

Our test car was reasonably firm-footed on the test curves, but body lean was noticeable at high speeds. Heel-over was about normal at speeds up to 50 mph; at that speed, the body leaned heavily—but it wasn't until the test curve was taken at higher speeds that we saw that the car had reached its maximum point of lean at 50. Knowing the maximum point of heel-over, we were able to take the DeSoto through the test curve slightly faster before it started into a four-wheel drift. Some road noise is transmitted through the body at high speeds, depending on the road surface, but on normal surfaces, noise is not bothersome. Wind noise keeps to a minimum at all speeds. Overall, the DeSoto has better-than-average riding qualities, and the car is quieter than many cars in its class.

Does the Firedome V-8 give the car good performance?

The high-torque V-8 enables the DeSoto to keep abreast of most of its class. Its standing-start, quarter-mile time of 19.7 seconds is about average, considering the car's weight and horsepower. The Fluid-Torque Drive takes credit for some of the car's low-speed performance, for without the added thrust of the torque converter, the semi-automatic Tip-Toe Shift could not produce acceleration figures like those in the DeSoto's test table. The DeSoto's top speed average of 98.37 mph is a little below the average for cars with similar powerplants, but certainly high enough for present (and future) highway conditions.

The DeSoto is a fairly powerful car; does it have poor gas mileage because of that? MT's test car was as short on economy as it was long on power. Although it ranks among the lowest tested this year, the '53 DeSoto's economy has improved slightly over last year's car at 30 and 45 mph. The '52 DeSoto had slightly better mileage at 60 mph.

How does the DeSoto's transmission operate? Our test car was equipped with a Fluid-Torque Drive unit coupled with a Tip-Toe Shift transmission. Tip-Toe Shift, available as optional equipment on all models for \$130, is a semi-automatic transmission which shifts hydraulically in DRIVE range from third gear into fourth when the driver lifts his foot from the throttle. Tip-Toe Shift with Fluid-Torque (available for \$236 on Firedome models only) is primarily the same, except for the torque converter.

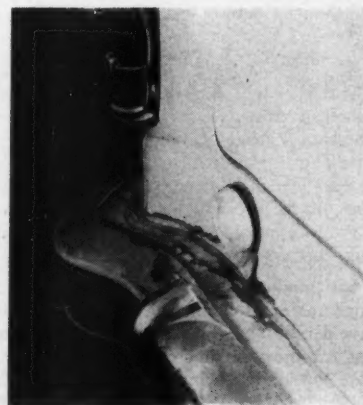
This transmission doesn't let the driver be as lazy as some, for it is necessary to use a clutch pedal to change gear ranges. In normal driving, however, the clutch is used only when you wish to shift to REVERSE or LOW. The two gears in DRIVE range are suitable under most conditions, although there is no shift-down from fourth to third gear above 35 mph. Be-

(Continued on page 78)

DeSoto's profile was altered only slightly this year. Heavy chrome strips are new

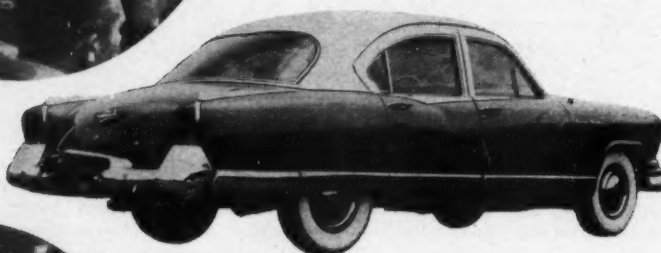
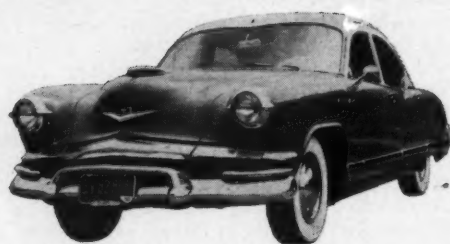
MT Research crew decides on shift method to get DeSoto's best acceleration times

Merits of rear-end filler cap have yet to be proven. Here, overflow discolors panel





*everybody
looks at
a...*



KAISER

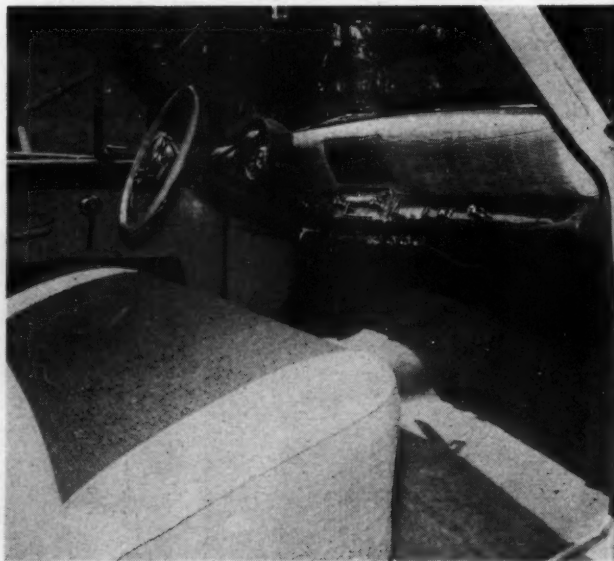
*and everybody looks twice
at its interior. What's more, a
growing crowd is staying to cheer
its comfort and economy*

WHAT DID THEY SAY about *your* new car when you drove it home? Admiring neighbors probably commented on that novel airscoop and the fins on the fenders. Perhaps a few said the gray or blue upholstery harmonized nicely with the dashboard.

Then the man next door drove up in his '53 Kaiser Manhattan. The joker of the block made a humorous remark about the vivid peacock blue and ivory body, but even though people joined in the laughter, they secretly admired the low, bright-colored car. A few still looked at your sparkling new sedan, but attention was now focused on the car that, while it might be actually older, was much "younger" and more fascinating in appearance.

Why is the Kaiser "something different"? Before answering that, we'll ask another question: What made certain Duesenberg, Rolls-Royce, or Packard cars outstanding in their day? The answer applies to both questions—Howard ("Dutch") Darrin. Darrin has combined his styling skill with the limitations of mass production, and the result is one of the most interesting stock cars in America. Uncomplicated lines and a long, low appearance show the individual touch.

What makes the Kaiser's interior so unusual? Just name materials and color schemes that few other stock cars have dared to use—Kaiser probably has them! MT's Manhattan test car drew small crowds at every stop, and the comments were not quite so impressive as the facial expressions. Some



Kaiser's bamboo-like plastic dashboard is an outstanding departure from anything used previously on American stock cars

AN MT RESEARCH ROAD TEST REPORT

people showed amusement, others amazement. Some studied the Kaiser's interior without comment. Had they been thinking aloud, they might have said, "This car sure is different from mine, but is it really so strange? Looks pretty practical to me. I wonder why the people who built my car didn't try something like this?"

The K-F styling survey revealed many things about the furnishings, paint, draperies, and materials used in our homes. Even clothing colors were studied, and results of the trends discovered are now on the road for all to see.

Does the Kaiser show individuality in any other way? Yes, K-F has outdone the industry in an effort to provide real safety in car interiors. Billed as "the world's first safety-first car," Kaiser has taken a controversial step toward ultimate safety by installing a "pop-out" windshield. MT Research did not have an opportunity to test the usefulness of this much-talked-about feature. A couple of uneasy questions do come to mind, however: how hard does the passenger have to hit the windshield to make it pop out, and where does it (and, incidentally, the passenger) go after it has popped?

The Kaiser's front seat safety campaign has not reached a point of perfection because the full value of the glare-free, plastic-topped, padded dash—which needs thick, non-rubbery padding to do its job properly—and other safety measures will not be realized until *all* projections vanish from the dash panel. The lower edge, at the center of the dashboard, contains control buttons at knee level, leaving passengers vulnerable to injuries that could have been avoided. Direction signals further enhance Kaiser's safety campaign. They are standard on both Deluxe and Manhattan models.

The Kaiser has many interesting features, but what about that other top selling point—economy? The '53 Kaiser is one of the few cars in its price class that can boast of real economy. The Kaiser has given better-than-average fuel consumption figures on MT road tests for the past two years, and in this year's test, it did even better. Because our previous Kaiser test cars have had overdrive and this year's car

had a Dual-Range Hydra-Matic transmission, the improvement in gas mileage can be considered especially good. By comparison with last year's car, the '53 Kaiser showed an increase of 3.0 mpg at a steady 30 mph, 3.3 mpg at 45 mph, and 3.9 mpg at 60. As shown in The Story in Figures (page 84), the Kaiser's overall average, including traffic fuel consumption, was 21.6 mpg. The overdrive-equipped '52 Kaiser averaged 20.6 mpg. The tests were run with Mobilgas Regular.

Is performance sacrificed for economy? Under normal driving conditions, the Kaiser's performance is satisfactory. Only in the upper speed ranges will you miss some power. Acceleration at low speeds is quite acceptable, for the Kaiser went through the quarter-mile time trap in 21.6 seconds from a standing start. Its 0-60 acceleration runs averaged 20.4 seconds.

The drop in acceleration at higher ranges (30-70 mph time was 25.8 seconds, much slower than the top performers in the Kaiser class) is caused by the low rear axle ratio of 3.3:1 used with Hydra-Matic, and the low horsepower output for the car's weight. An average top speed of 89.5 mph should satisfy all but the man who wants a Novi with a back seat, and the Kaiser is able to cruise without strain at speeds that are more than adequate for our crowded roads.

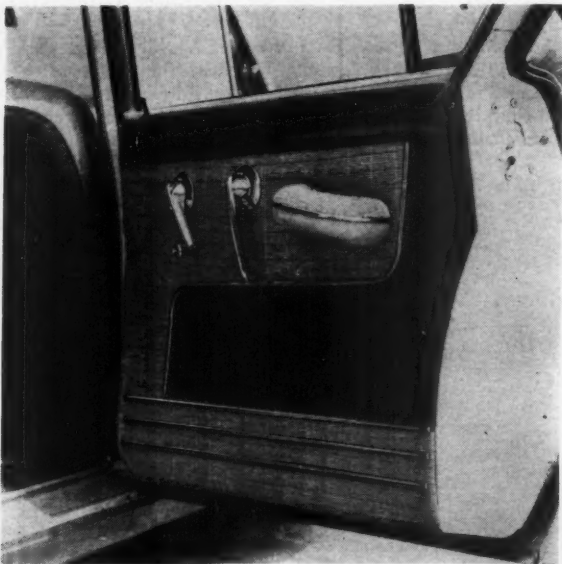
Is the Kaiser's powerplant on a par with others in its class? The Kaiser "Supersonic" engine, a 118-bhp six, makes the Manhattan one of the low men on the horsepower totem pole. Kaiser makes few claims for its Continental engine, other than economy. To Kaiser, assured economy looms larger than the vision of winning the horsepower race. The Kaiser's L-head, 226.2-cubic inch engine holds its own against engines of similar displacement.

Can the engine be serviced easily? The Kaiser's valves are not readily accessible without first removing an access plate on the right fender. Other components under the Kaiser's hood are ideally located for service and repair. Plugs, generator, fuel pump, distributor, and oil dipstick are out in the open, and no equipment has to be removed for periodic servicing.

This welcome relief from overcrowded engine compartments has a sour note, but it's one that can be easily corrected. The Kaiser's hood does not rise far enough to take advantage of the engine's excellent accessibility.

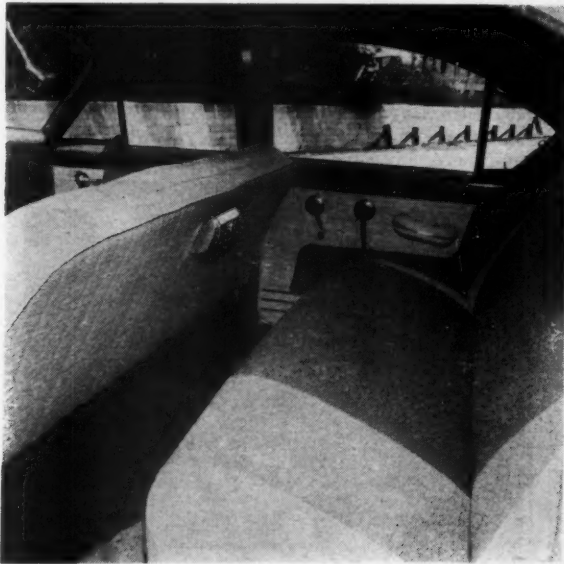
(Continued on page 82)

Photos by Jack Campbell



Durability-plus. All trim (including headlining material) is plasticized. Low metal strips guard against wear on plastic

September 1953



Because of fresh colors and materials, Kaiser interior appears brighter than most. Sloping roof cuts down rear seat headroom

Thirty-one

STUDEBAKER — Penny

THE LAUGH'S ON US! An experienced driver can form an early impression of a car and later, he may have his impressions compare very closely with the results of a complete road test. We have often returned from a road test with an "I told you so" expression, and completely satisfied with our pre-test theories. But it didn't work with the Studebaker Champion.

When the '53 Champion Regal sedan was picked up at the Studebaker Corporation's factory branch in Los Angeles, and brought to **MOTOR TREND** to be fitted with test equipment, the Research Staff didn't look forward to the road test with the zeal shown at the time we tested the low-slung Studebaker Commander coupe. The Champion four-door sedan didn't have the sports car lines of its larger running mate, and it had a less-powerful engine. After a few guesses as to how the car would perform, we started off on the road test, feeling somewhat sorry for ourselves because we didn't think we'd enjoy the good handling and riding qualities of the larger Studebaker (see "Is the Studebaker Practical?" **MOTOR TREND**, June '53). However, things soon changed. The armful of reports gathered during the road test showed not only that the Studebaker Champion is, in some ways, outstanding in its class, but it taught us that guessing belongs in the parlor game category.

Before going into the road test details, we feel that we should point out that the MT test car was the same Champion sedan used in the '53 Mobilgas Economy Run. One of the gas-saving techniques employed by the Champion in the Economy Run was use of an overdrive that cuts in at about 23 mph. This gave increased gas mileage only during the traffic checks, when we allowed the car to go into overdrive whenever possible. The Champion was tuned primarily for economy, rather than for overall performance. The only changes **MT Research** made on the test car came late in the road test, when the brake checks were run. The Champion's brakes had been drawn well away from the drums to keep friction at a minimum during the Economy Run. However, to get the most out of the Studebaker's brakes, **MT's Research** staff tightened the brakes to a more normal operating position before starting the braking tests. The Champion sedan was stock in every respect, and the only optional equipment used on the car, aside from the overdrive transmis-

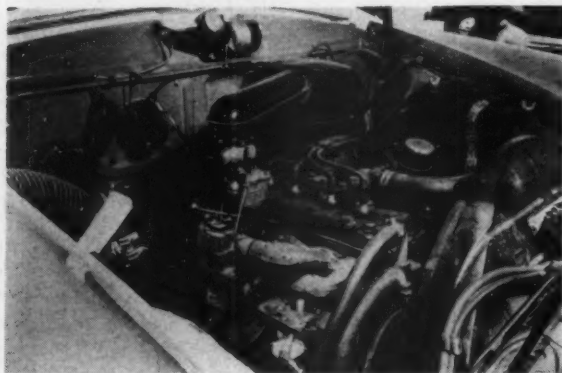
This smooth piece of sculpture had us fooled! Whatever we expected, it certainly wasn't 36 miles per gallon!

Photos by Jack Campbell

sion, was a factory-supplied 7.5:1 aluminum cylinder head. Regular grade Mobilgas was used during the **MT** road test.

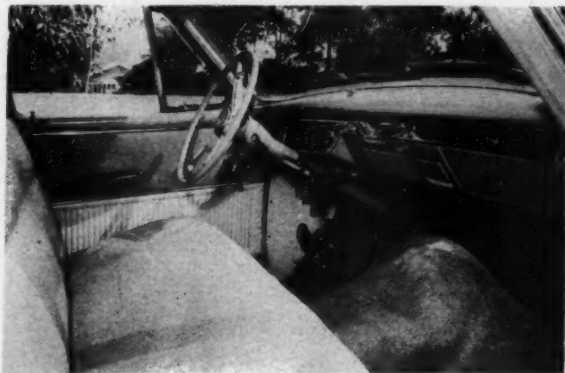
Does the Studebaker Champion have outstanding fuel economy? To answer only "yes" to that question would be a gross understatement. The figures compiled during the road test tell a rather impressive story. The Champion's overall fuel consumption average at steady speeds of 30, 45, 60, 75 mph, and in traffic was 26.5 mpg! *This is surprisingly close to the car's 26.8 mpg average in the Economy Run.* The fuel consumption table (see *The Story in Figures*, page 88) shows that this particular Champion had economy in conventional third gear that was well above that of many cars in overdrive. In overdrive, the Champion showed remarkable economy. Its 36.2-mpg average at 30 mph is surprising enough, but the Studebaker put on its best show at higher speeds, averaging nearly 25 mpg at 60, and 19 mpg at 70 mph. Tired of hearing that fellow at the gas station bragging about his car's 15- or 16-mpg average in traffic? Tie up a copy of **MT** in pink ribbon and present it to him with a suggestion that he read the Studebaker Champion's *Story in Figures*.

Is the Champion an easy car to handle? Yes, it handles very nicely. **MT Research** successfully outguessed the Champion on this count, for its appearance suggested easy driving. Its sloping hood indicated a good view of the front fenders for maneuvering the car in tight spots, and its length (16.5 feet), its width (a



"One of the nicest setups I've seen yet," said Ray Brown as he checked accessibility of Champion's 85-horsepower powerplant

Thirty-two



Champion's interior, while comfortable and functional, was not up to the par of its class. Dashboard was free of projections

Motor Trend

Pinching Champion



mere 69.5 inches), and its small, 6.40 by 15-inch tire size hinted that it would be an easy car to park and guide through traffic.

The Champion's steering system was just stiff enough to rid the wheel of the "lightweight car" feeling (the test car weighed 2980 pounds). A low-geared steering system limits the wheel to four turns lock to lock, and the car is easy to control under all conditions.

Does it have good roadability? Our Champion test car was rock-steady on normal road surfaces at all speeds, and steering correction was needed only when the car's course was altered by stiff gusts of wind. There was little pull coming out of car tracks or on soft shoulders, and like the larger Studebaker tested in June, the Champion was very steady on curves. The rear end of the car became unsettled only at speeds over 50 mph on washboard roads. There was no wheel hop on any of the rough test roads; some steering wheel shock was felt on washboard roads at speeds over 25 mph.

Is the Champion's riding quality good for a car of this size? The Champion's riding quality is above average, and it is one of the things that proved our pre-test guessing unreliable. The Champion seemed to smooth out the road before it, for it reacted excellently to normal dips taken at speeds as high as 80 mph. The same characteristic was displayed on sharp dips. There was little rebound after going through a dip, and the car was kept easily under control. Oscillation (up and down body move-

ment) was non-existent, and the Champion settled down quickly after all dips.

Except for the steering wheel shock on washboard roads, there was no vibration within the car at speeds up to 30, but at 40 mph, some vibration was transmitted throughout the body of the car. We rate the Champion better-than-average for its noticeable absence of sidesway. Body lean stays at an absolute minimum at all speeds on normal curves. On a tight test curve the Champion refused to lean excessively, and slight rear-end drift began only at 55 mph.

Is the interior designed to make the most of this steady ride? Passenger comfort has not been slighted in Studebaker's effort to make the '53 Champion economical, small enough to be handled easily, and yet something different from other cars in its class. The Champion's seats are very comfortable, and give good support to the back and legs. The seats are padded with foam rubber, but the seatback springs are covered only with the wool cloth upholstery. These springs may wear through the upholstery or become bothersome to passengers after a few years of normal use. Shoulder room and legroom are average in both front and rear seats, and for a comparatively low car (60.5 inches high), the Champion is endowed with generous headroom. Overall, the Champion gives an enjoyable ride, its seats are as comfortable as those of any car in its class.

(Continued on page 86)



One-position door-stops hold the Champion's doors open at a wide angle. Our six passengers had plenty of headroom, legroom

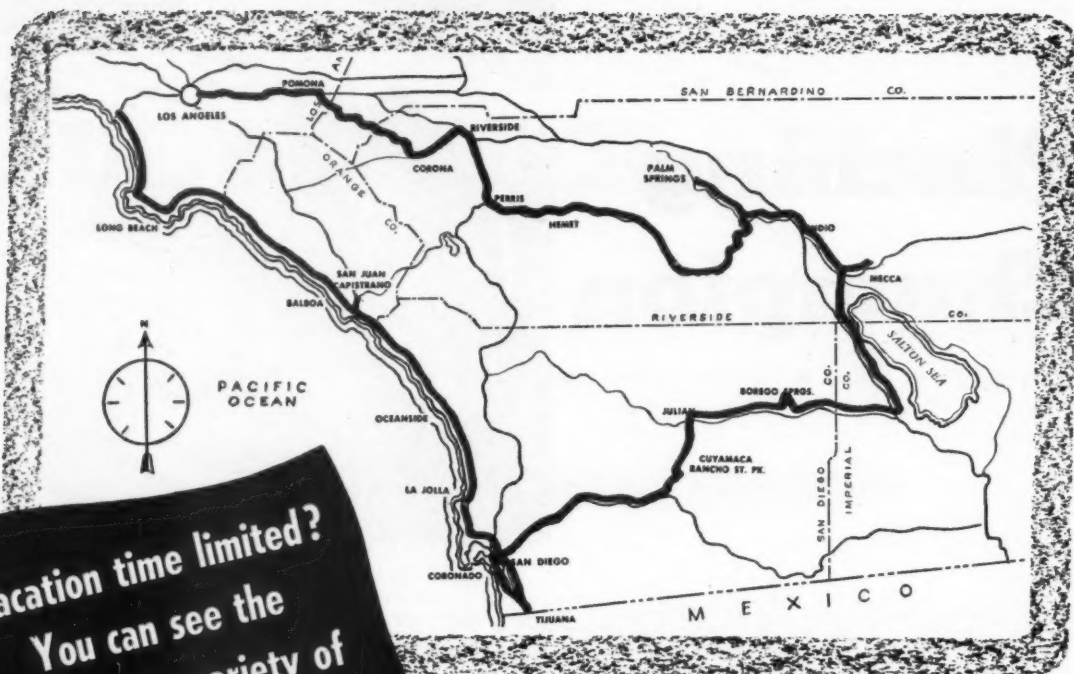
September 1953



Stop on a steep hill, depress the clutch and brake; release the brake—and the hillholder keeps the car from rolling backward

Thirty-three

Vacation time limited?
You can see the
astounding variety of



SOUTHERN CALIFORNIA

in three days

By Robert F. Nitske with Pete Molson

I ONCE WAS a Coloradan, with dim and sad memories of California. Along with a coachful of other unenthused recruits, I once had detrained at Camp Roberts on a New Year's Eve. The clouds had burst open. As we marched single file to the dispensary, I stepped into what felt like quicksand. I failed to recover my left shoe.

Since this had been but the prelude to many months of climbing slippery, muddy hills and sliding down the gooey mire that composed the other side, my postwar home in Colorado seemed quite satisfactory to me. Those miserable military months were etched all too clearly in my mind, and a concerted effort on the part of our Southern California friends to get us to visit them had little success. To make matters worse, they were new and horribly enthusiastic Southern Californians, and after every mail delivery our box bulged with enticing, colorful, and informative folders.

Eventually, we admitted that we might be a little bit prejudiced, and off we went—just for a visit, of course. One of the highlights of that visit was a 550-mile circle trip that we made in three days from Los Angeles. We did it in winter. Perhaps the most touted advantage of the Southland is

that you can travel anytime you like. This is true enough, but it's good to have some idea of what you may get into. Briefly, parts of Southern California have formidable summers, and when you get high enough, the winters are the traditional snow-and-ice variety. So take your tire chains along for winter peace of mind over the spectacular Palms to Pines Highway, or—if you go in summer—don't plan to travel in the desert between 9:00 A.M. and 6:00 P.M.

Arm yourself with auto club or oil company maps of the largest scale available. Get strip maps if at all possible; the bigger and more numerous they are, the more impossible it is to fold them, but they will show you far more historic spots and intriguing side roads than you can hope for from a compact map. There'll be some long stretches without civilization, so a few snacks and a jug with cold or hot drinks, again depending on the weather, will help matters.

You can make this trip in any style you like. Campsites abound; so do luxury hotels, and everything in between.

Head east out of Los Angeles on the Ramona Freeway (the Hollywood Freeway connects with it at the Civic Center). If you are lucky, a helicopter will be obligingly delivering



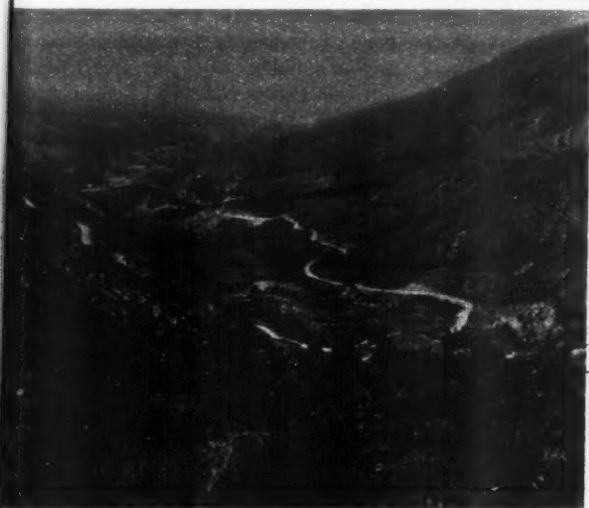
Heading east from Los Angeles, you'll see fat, postcard-like orange trees in front of the mile-high San Gabriel Mountains



MT's '53 Studebaker Champion sedan stops before a feathery row of graying old olive trees near the Ramona bowl in Hemet

mail to the post office (off to your left as you emerge from the cut through the center of town). If the Freeway is not completed when you make your trip, highway signs indicating U.S. 60, 70, and 99 will presently direct you onto Garvey Avenue.

If you have succumbed to Southern California's ubiquitous drive-ins and are wondering why they have suddenly disappeared, be patient. The first to appear on this busy route will be Stan's, at the corner of Garvey and Valley Boulevard in El Monte. Here, as elsewhere around Los Angeles, you can get a big ham-eggs-and-potatoes breakfast for around a dollar, with less hearty meals for half of that. Incidentally, don't expect fresh orange juice. You will probably get the frozen kind unless you ask — and pay more — for the other variety. Tops for a dinner is around \$1.50. After eating,



The climb from Hemet to 4900-foot Keen Summit is a quick one. That's just a Southern California "high fog" in distance



ALL YEAR CLUB

Palm Springs, of course, is civilized to a perilous degree. Water, however, remains one of the needed items for an oasis



ALL YEAR CLUB

These dunes in the Imperial Valley will never again look just as you saw them



Indio's pride, a flourishing date garden. Each palm tree needs pollinating by hand



Clouds hang over the mountains on State road 78, high between desert and coast
ED SIEVERS

SOUTHERN CALIFORNIA in three days

stay on Garvey through El Monte. Just before you reach Pomona, signs will direct you to the huge Los Angeles County Fairgrounds (the Fair is on this year from September 18 to October 4) and, just beyond, to the Kellogg Arabian Horse Farm, where exhibitions are held each Sunday (it isn't necessary to belong to the horsey set to get a bang out of this). At Pomona — and again in Riverside, if you go that way — you will have your best choice of overnight accommodations before you reach the desert. They will run about \$6 per couple. There are excellent places to stay all along the route, but they may be full if you are traveling in the busy season.

Turn right from Pomona on State Highway 71. You won't make time, but you will see some countryside that looks much as it did when Franciscan monks and Spanish soldiers first saw it. Beware of sudden sharp turns in this non-super highway. You will skirt the dry Chino Hills on your right and the great Prado Flood Control Basin on your left (this is part of a subject never discussed in Southern California, but known elsewhere as weather). Corona is famous for a relic of early road-racing days, a full circle course that centers around the town. Children — and enthusiasts — will love a quick trip around the course, though it is a tame-looking, tree-shaded avenue by now.

If you want a fine meal and/or just want to see the justly famed Riverside Mission Inn, U.S. 91 will take you there (you are on it already, for it joined 71 just west of town). Overnight rates are \$8 to \$18 for two; motels are cheaper and plentiful. From Riverside, take U.S. 395 to Perris. We'll see you there in a

while, because we're going along with those who want to see more of the countryside: we are staying on 71 for five miles out of Corona, then taking a winding, unnumbered road east past Lake Mathews to join 395 and turn south to Perris.

From Perris take State 74 (go straight ahead where 395 turns right) across to Hemet, quiet heart of the olive country. The Ramona Bowl, home of the annual Spring pageant, is off to the right; San Jacinto, with the old-fashioned Vosburg Inn, to the left (if you're hungry, go there; double rooms are \$10 to \$12). Back on 74, plan to loaf along, for you will soon be on the spectacular Palms to Pines Highway (a part of MT's regular road test route). In a little over 20 miles you will climb from Hemet's placid olive and apricot groves to Keen Summit (4917 feet) and the Swiss-style Hemet Valley. On your left are the San Jacinto Mountains, dominated by "San Jac" itself, a 10,831-foot giant. The turn to rustic Idyllwild is 18½ miles from Hemet. Resort hotels will treat you well for \$5 to \$20 per couple. If your tastes run more to campgrounds among the trees, try nearby Pine Flat or Hurkey Creek. On your way down to the desert, stop for a view of Palm Canyon (clear days only) which you will presently be walking in, near Palm Springs. Across the road from the view point is Howell's, an open-air grocery where a roaring fire will greet you on a cold day, or a drink can cool you on a hot one. Spend a little time talking to the owner, whose knowledge of the area is considerable. Take a look at his ribbonwood tree, and the outside yucca roots and stalks that hold up the roof of his store.

La Jolla's famous cove on a busy Sunday. Sea anemones and crabs are in tidepools

Below left, San Diego is now a bustling adolescent, though it is 400 years old



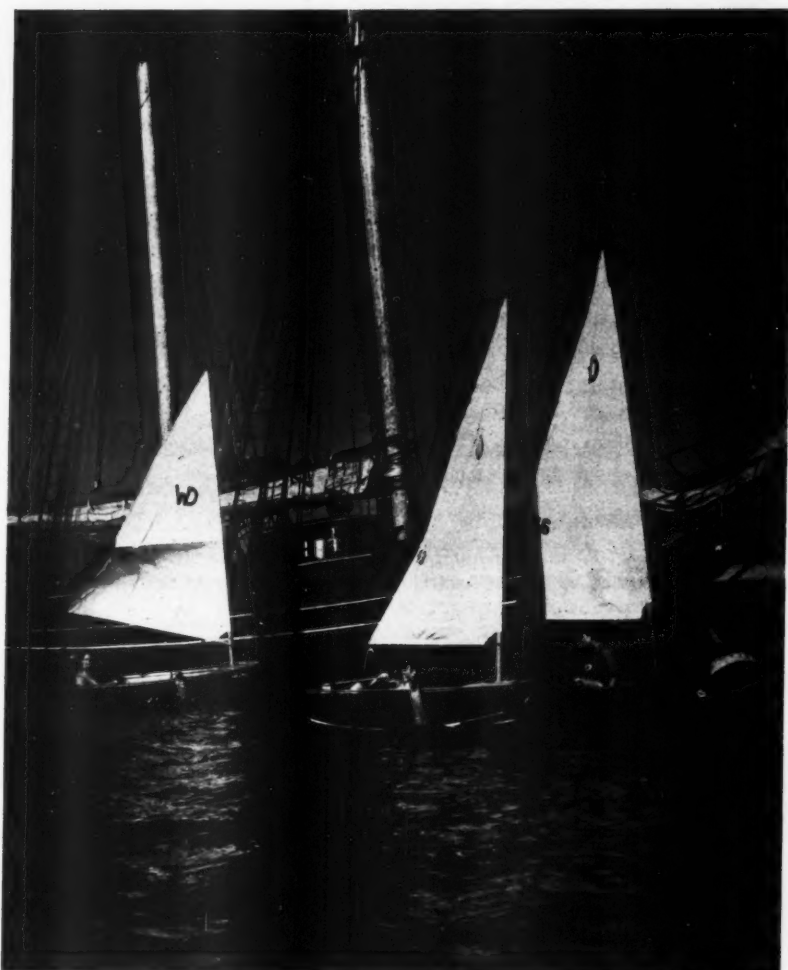
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Down over Seven-Level Hill you'll go next, and at the foot of the Palms to Pines road at Palm Desert is what may be your first glimpse of a date garden. Take Highway 111 to Palm Springs, which is all they say it is. Rare is the motel without a swimming pool; rare, too, is the motel without a reservation (if you're traveling in winter; summers, with out-of-season rates, are another story). Let us say simply that Palm Springs can match your every whim; there are good inexpensive places to stay (from \$6 up) and to eat, so unless you're on a real blowout, a little hunting will turn up something more along the lines of, say, a MOTOR TREND expense account. Don't miss Palm Canyon (an hour ago you looked down on it from above), and the women among you will not need to be told to see the shops: this tiny resort is quite the equal of Wilshire Boulevard or Fifth Avenue.

Better hole up here if it's getting hot. A dash back through Palm Village and on to Indio via State Highway 111 is permissible in summer if you have in mind a gin-and-tonic (or a date milk shake) and a dip in the beautiful pool at the Hotel Indio (a room will cost you about \$7). Motels come with or without pools, and cost \$4 to \$10 and more.

Looking for genuine Mexican food? Stay on 111 through Coachella to Mecca, and cross the S.P. tracks on 195. Conchita's is the place you want for a garlic-cheese-and-chili orgy (or, for that matter, America's largest pie a la mode). When full, stay on 195 and head east for a brief look (in about four miles) at the All-American Canal, which has brought lush prosperity to the Coachella and Imperial Valleys. Incidentally, the Canal is almost on the ancient shoreline of the Salton Sea. To get to this peculiar body of water, turn around. Go back, then left on 195 till you meet U.S. 99, and continue south. The surface of the Salton Sea is 241 feet below sea level and swimming—or rather, bathing—is a novel experience indeed, because of the heavy salt content of the water. Watch for a posted road leading to the Sea itself, for its shores are of a gluey clay that does not invite mashing off across the flats. This road goes left about nine miles after you meet 99. There are beer, sandwiches, and ice cream, and the kids will enjoy playing in the uninviting-looking but surprising water. You might even like it yourself.

Follow the western shore of the Sea along U.S. 99 until you come to State Highway 78, and turn west. Here you



ALL YEAR CLUB
Hen and chicks: Jimmy Cagney's schooner with Newport Harbor's smaller fry

may get your first sensation of the vastness of the desert, which has become a lively big business in the other spots you have seen since Palm Desert. A howling sandstorm heightened the loneliness as we headed west, but the Studebaker didn't seem to mind.

Scotty's Ocotillo is a small store, but also a great deal more. It is the center of a fascinating section of the desert that is alive with lonely curiosities, such as the Elephant Trees and Split Mountain. They'll tell you all about them at the store, as well as whether your type of car and equipment—and, again, the weather—make side trips a good idea. Don't be fooled by the "Borego Desert State Park" markings on your map. Stick close to main roads unless you know just where you're going: most of the Park is in a very primitive state.

Shortly beyond Ocotillo is a new road, not on most maps, that leads to Borego. If you're looking for excellent lodging

and food to match, the Desert Lodge is a good bet, the more so because of its fine pool. The desert's fascination is in more primitive form here than at Palm Springs—we refer not to the fine accommodations, but to the lack of neon and city-style gimmicks. The lodge will cost you \$10 in the winter, \$7.50 in summer. It's a nice way to spend money. There's a camping spot at another Palm Canyon near here.

Rejoin Highway 78 by way of Yaqui Pass and continue to Julian, then turn south on 79. Fire has destroyed a part of the Cleveland National Forest here. You can see the Salton Sea from the marked view spots at 4631 feet, and it's well worth a stop. Continue on 79 through the rock-ledged mountains of Cuyamaca Rancho (campgrounds) to Highway 80, then west and down into San Diego. From here back to Los Angeles, motels are plentiful. They'll average \$5 to \$8.

(Continued on page 98)

ONE MAN'S DREAM

By Jim Potter



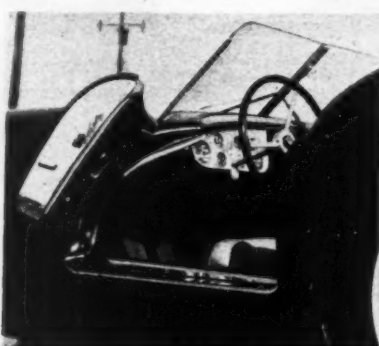
Tail lights are set into the rear bumper boots; dual exhausts are below fenders



Retractable headlights are hydraulically controlled, similar to those in the Cord



Overhead-suspended clutch and brake pedals a la Ford. Shift hangs from dash



The door and body pillars are faced with chrome strips. The louvers are functional

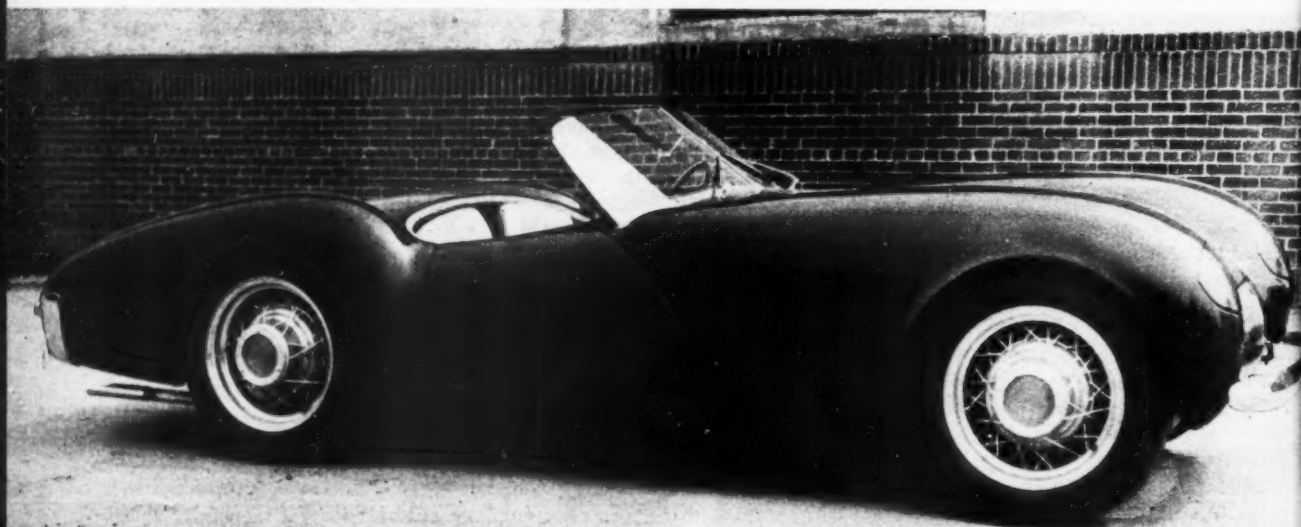
WHEN YOU HAVE an idea how a car should look and how it should be built — and have the fortitude to follow through with your dreams — you could be Vince Gardner, a one-man automobile designer and engineering genius.

After winning the *Ford Times*-sponsored contest conducted by *MOTOR TREND* in 1950, Gardner rolled up his sleeves and went to work. Two years of oft-interrupted labor and many headaches produced as neat a sports car as you'll find. Shown for the first time recently at the Michigan Motor Show, the car was acclaimed by stylists and the public alike for its many unique features.

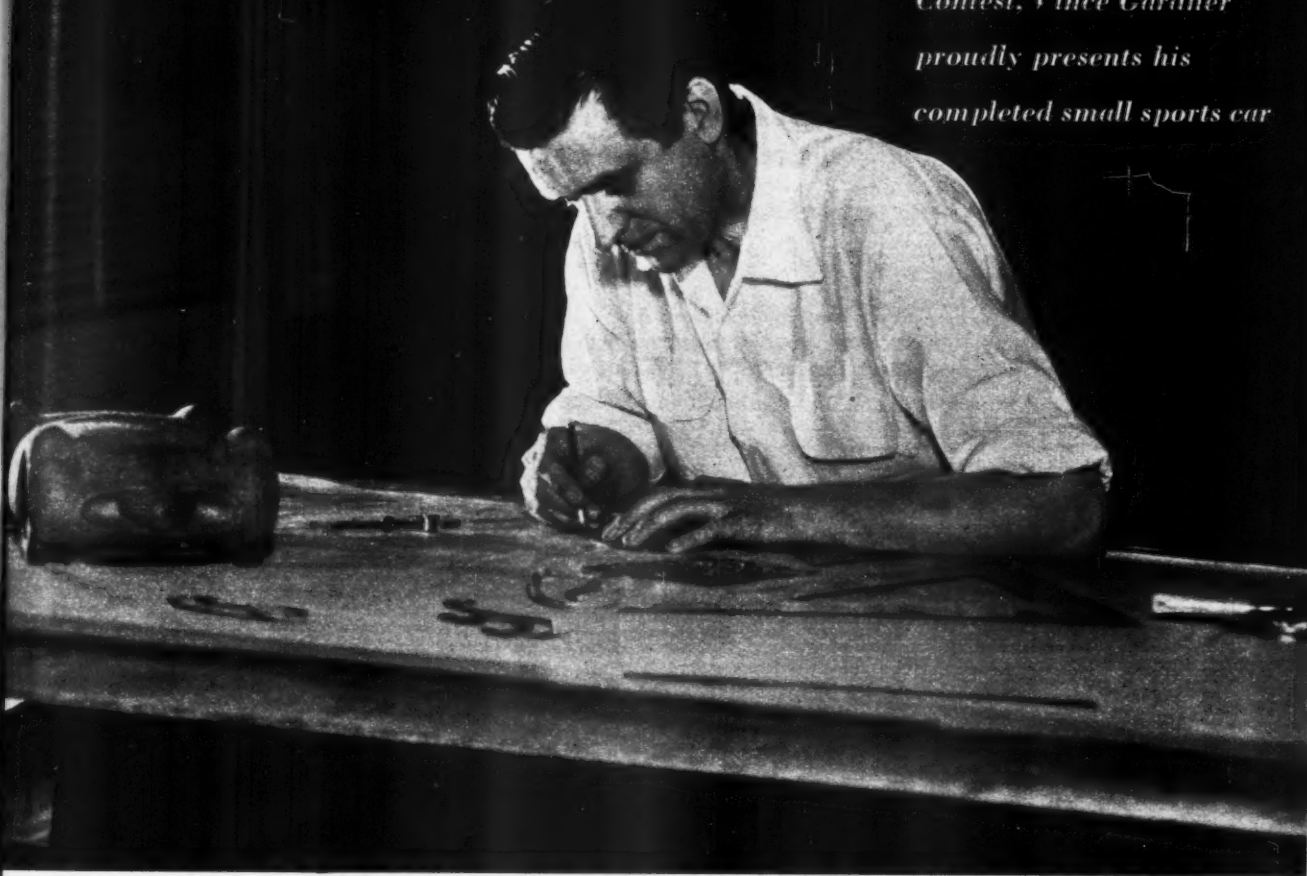
It's a truly small sports car: wheelbase 88 inches; height at the cowl only 32 inches (the lowest being built); a 50-inch track (standard cars average 56 inches); road clearance 5½ inches. Yet the cockpit is adequate for a six-foot man and the controls are engineered for easier manipulation than many foreign jobs of comparable size (such as the MG, etc.)

Gardner's plans include duplicating the aluminum-bodied pilot model in Fiberglas. The body and tubular chassis will be available, ready for addition of running gear. The chassis is adaptable for Singer, MG, Ford V8-60, and other powerplants of comparable size.

Side view shows influence of European styling in high fenders and long, contoured body lines. It's sleek and completely modern

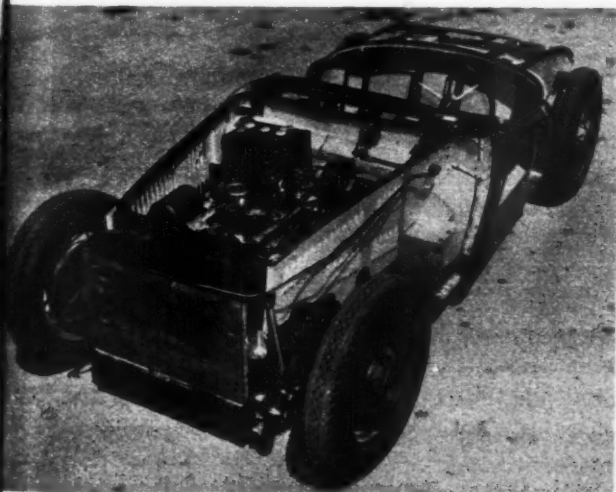


*Prizewinner of Motor
Trend's 1950 Ford Anglia
Contest, Vince Gardner
proudly presents his
completed small sports car*

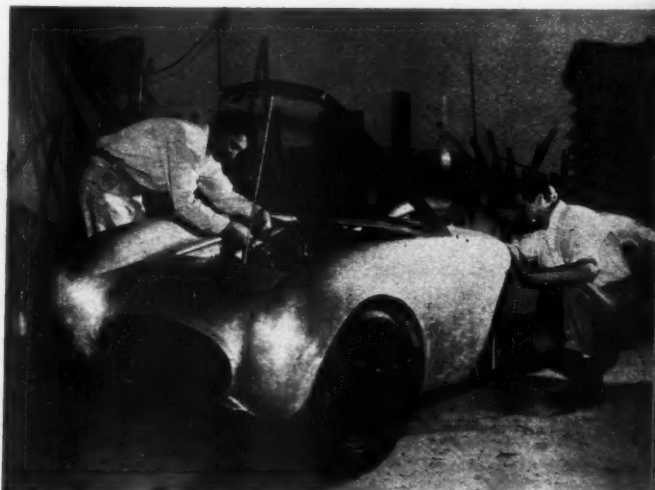


Gardner, with original clay model (left), had considerable styling experience before tackling the job of building his own design

Photos by Jack Campbell



Body skeleton is a new concept in body construction, allowing for a structure stress instead of a skin stress. Skin is aluminum
September 1953



Gardner personally constructed many of the detail parts. Every detail was meticulously checked during long building period
Thirty-nine

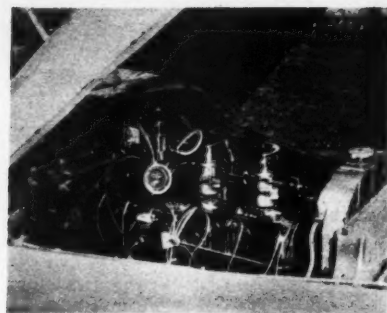
TREND *in Custom Design*

It is leaving its old paths to invade the European domain of subtle sculpturing and length

THE EVOLUTION OF CUSTOM DESIGN may be seen in these five pages of customs of today. The trend begins with Ed Mersick's completely restyled '41 Chevrolet convertible. Three years in work, this car is representative of the chopped-top-and-lowered-body

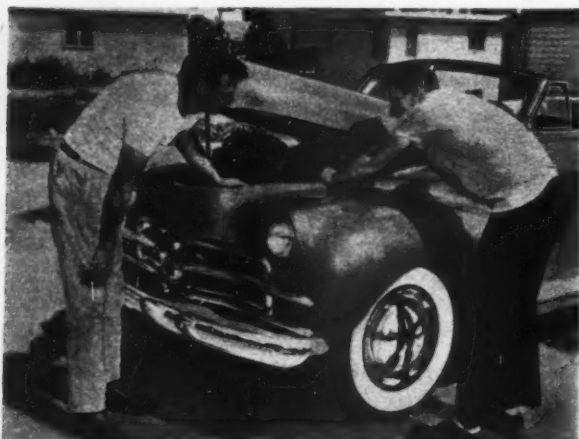
school of design prevalent in the early years of customizing. Still good looking, the car is nearly a trademark with some body re-designers today.

Top feature of this high-quality custom job is its fully chromed, Bailon-designed, hand-formed dash panel. On it

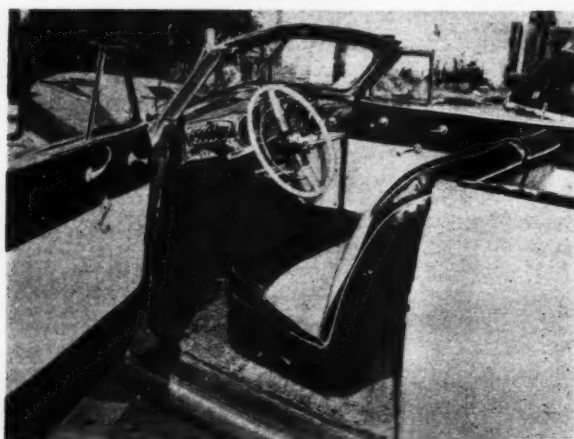


Mersick custom's mill is from Chevy truck

are eight Stewart-Warner instruments, 10 vacuum control knobs, five electric control switches, plus a vacuum-driven ashtray and glove compartment door. At night the centerpiece glows a soft red hue, reminding one of a jukebox at the corner drugstore. Very nice indeed!



Use of stock grilles is typical of customized prewar cars



Bailon-designed dashboard, left-hand shift for faster starts

A style-setter, Ed Mersick's '41 Chevrolet custom is a fine example of the "chop, lower, and deckchrome" trend in customizing

PHOTOS BY KEN FUHRMAN



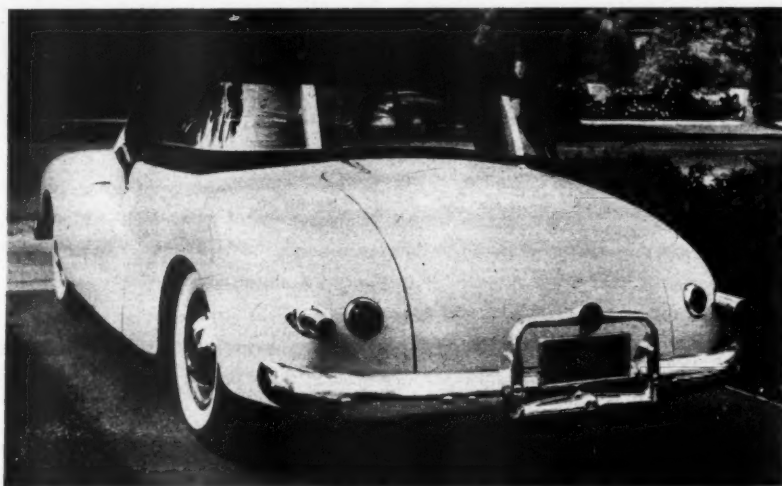


PHOTOS BY FRANK WORTH

Individuality is highlighted in this striking custom. Various stock parts are used in trim, but body is entirely hand-made

THE RADICAL SCHOOL of customizing shows itself in this Florida creation designed and built by R. R. Reed of Orlando. Creating the car from scratch by hand, out of 18-gauge sheet metal stock, Reed has "borrowed" some parts from production models. Headlights are modified Ford; tail lights are Pontiac; and grille is modified Lincoln.

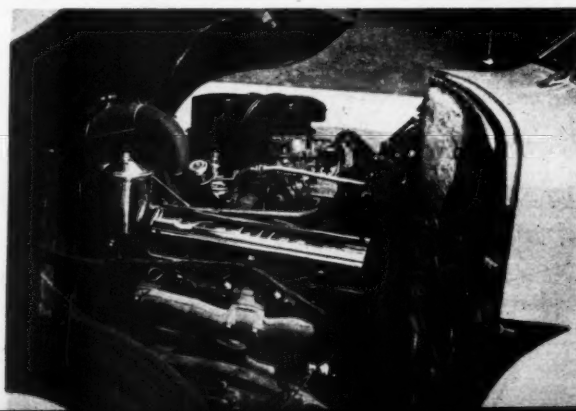
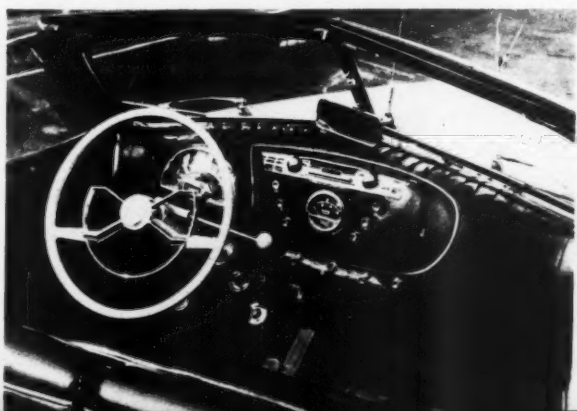
Not many body builders will go to the painstaking task of this type of creation to get that individual appearance and features, but sometimes it is worth the effort, especially when you consider such items as the novel hood arrangement. Hinged at the front, the entire forward section, including the grille, can be pivoted up and out for complete engine accessibility. On the next page are further steps in custom trends.



Simplicity and beauty are emphasized by smooth rear deck and handsome tailored top

Leather-padded dashboard adds richness to R. R. Reed's coupe

Hard labor is rewarded by novelties like this hood arrangement



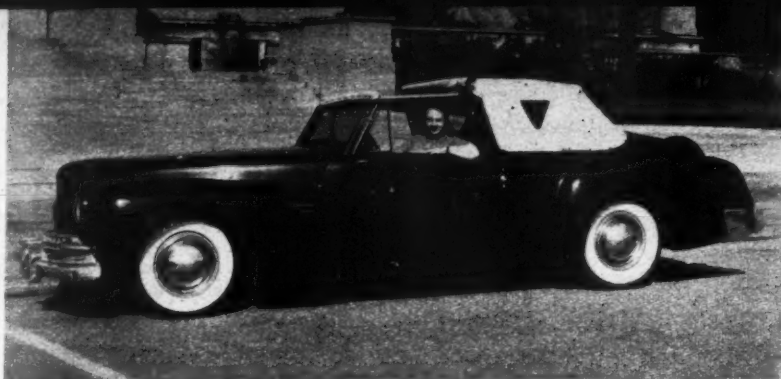
TREND in Custom Design

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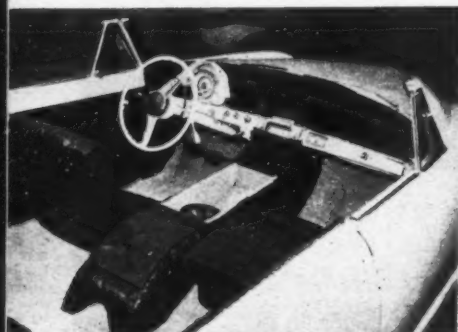
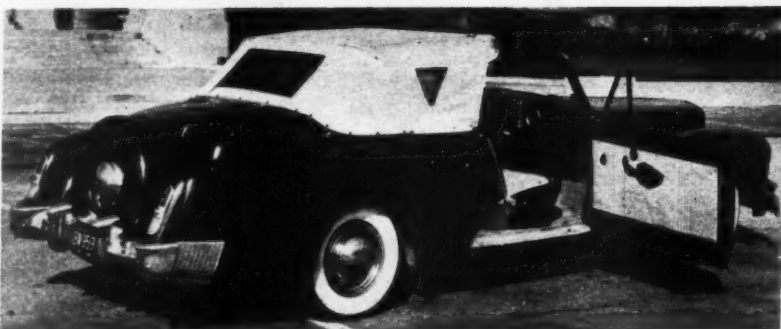
THE CHARM OF EUROPEAN appearance is retained in the high styling of Irwyn P. Metzenbaum's customized Lincoln "Cadillinc," the latter term coming from the '53 Cadillac engine that replaced the original V-12.

Metzenbaum, a city councilman of Cleveland, carries his conservative nature into his approach to customizing. As he puts it, "I wanted a conservative custom car; the result is what I think the Lincoln Continental of 1955 *could* look like."

The changes included an altered front end to provide a more graceful appearance. 1952 Mercury lights replaced the big wing-style headlights. Wherever chrome was removed, the body was filled in and smoothed over. The top is adjustable to three positions: closed, de ville, or wide open.—Sanford Markey



PHOTOS BY MERRILL DAVID



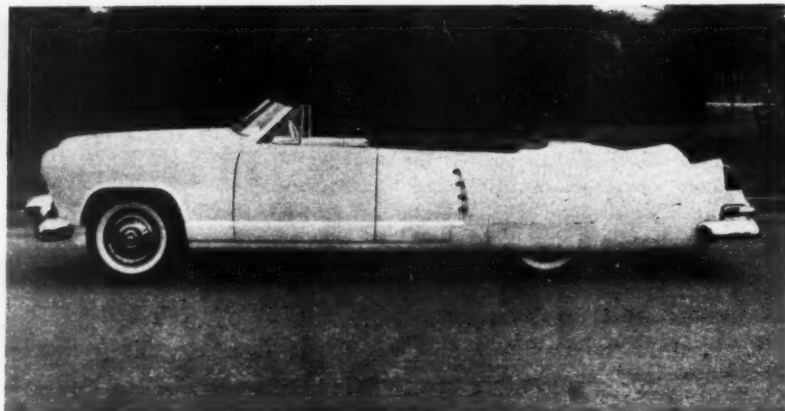
The Lundquist custom may serve as guide to the interior styling of our future cars

THIS FUTURISTIC CUSTOM began as a 1951 Kaiser four-door sedan! Six months' craftsmanship by Ted Lundquist of Oakland, Calif., resulted in some real artistry in metal.

To begin with, Lundquist stripped the interior and cut off the roof. Then he relieved the entire body of its chrome-work, and shaved the hood. A '52 Cadillac bumper and face bar form a simple grille. Cadillac rear fenders were molded to the body and re-designed with simulated airscoops. The curved windshield was beveled and smoothly edged.

Interior appointments include one which we predict for production cars in the near future. It is a large upholstered compartment separating the driver from the front passenger. Here it contains a record player, but other controls and conveniences — such as your radio — could be installed here.—William D. Dailey

Forty-two



This futuristic custom may some day be called typical of the pre-rocket ship era



PHOTOS BY KEN FUHRMAN

Molded continental tire mount has a vast following among fans of futuristic custom

Motor Trend

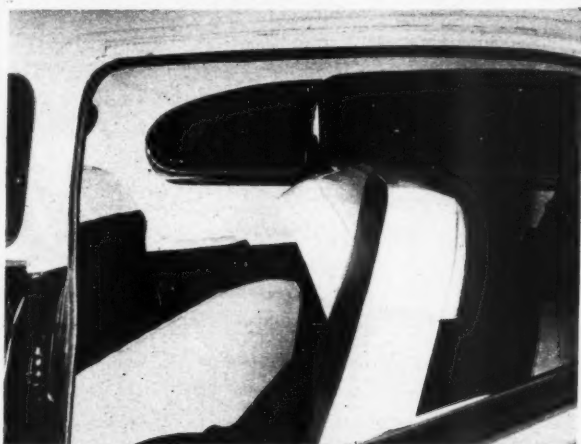
SOMETIMES A CUSTOM CAR starts as a crumpled mass of twisted body panels, hoods, fenders. Such was the beginning of this 1950 Mercury continentalized custom.

Camile Zanca of San Francisco purchased the remains of one mad traffic scramble for \$375. Rebuilding the car from scratch resulted in some advanced styling that you might consider for your custom project.

The rear end treatment is the outstanding feature of this custom. The continental look was given the Mercury by chopping the rear deck lid 18 inches, then welding the lower portion solidly to the body. The continuation of the side body molding line in a graceful downward arc enclosing the spare tire mounting was created by adding metal strips, welded and molded. Unusual tail lights, one in the center of the spare tire hub and two others installed vertically in redesigned bumper guards, complete the picture.—William D. Dailey



This is one of those customs that wears well. It might not cause a traffic tie-up, but its owner has a car that will look just as smooth and smart for several years



A simple custom interior—not far from stock, but so different!

Continental tire well was once a lowly inner tube-testing pan. Babe Zanca's custom was rebuilt from a totally demolished '50 Mercury coupe. Bought for \$375, its present value is \$3500

PHOTOS BY KEN FUHRMAN



TREND *in Custom Design*

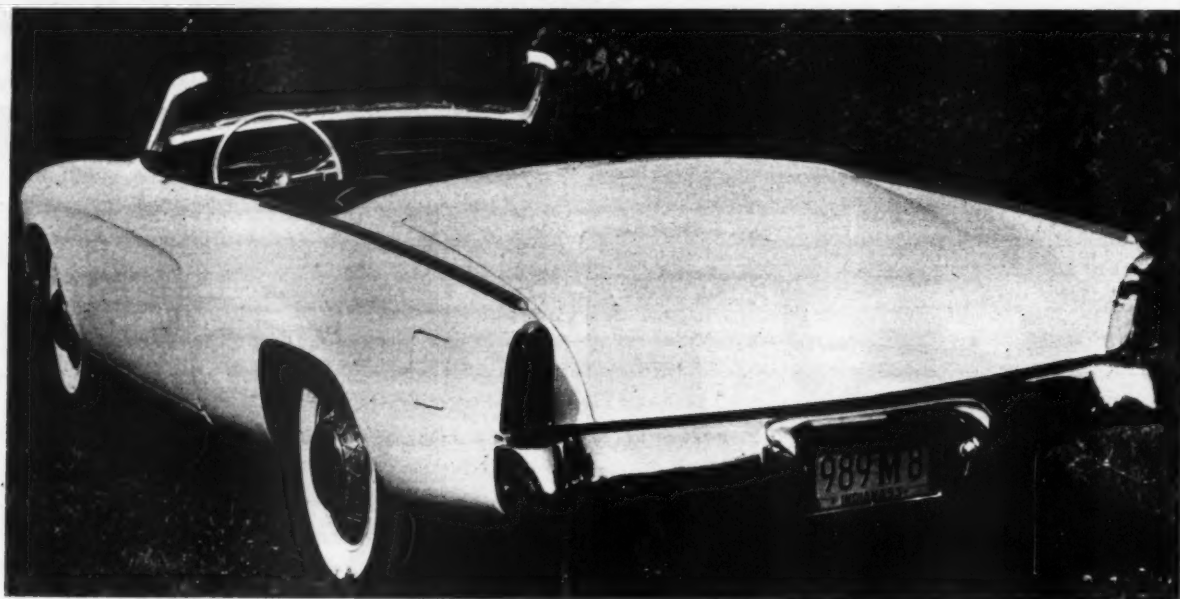
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PRIME EXAMPLE of an insatiable desire for something different is the 1953 Studebaker Commander shown here. Not content with waiting for the Studebaker factory to come out with a convertible model, Charles Stuart, Indianapolis Studebaker dealer, cut off the hard top and made his own. Stuart didn't stop here, however, but removed most of the exterior hardware and completely re-upholstered the interior in red leather.

Since many consider the '53 Studebaker Commander hardtop coupe the ultimate in American production model styling, Stuart's car may indicate a trend in custom design—Bob McCall



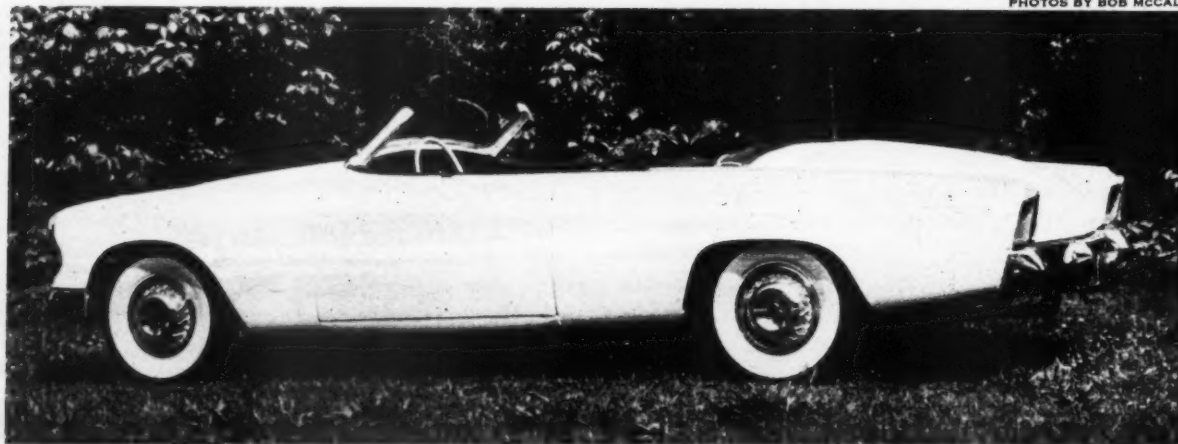
A natural for customizing, Studebaker may become known as "most often chopped"



Smooth, dechromed panels give coveted look of hand-built car

Original concave paneling eliminates usual "slab-sided" look

PHOTOS BY BOB MCCALL



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Hollywood TRAFFIC STOPPER

NOWADAYS IT REALLY TAKES something unusual to make an impression in the world's most impressionable city—Hollywood. The method of would-be movie queens and leading men is to be seen often—and in style. There's nothing new about the formula: to get around town, one must have a low, sleek, unusual car. Bill Grantham's "Stardust" is that Hollywood Stopper.

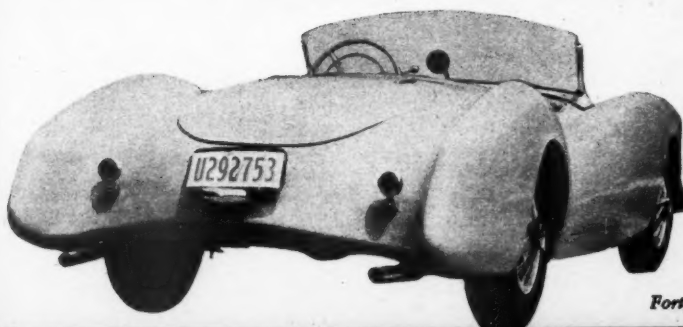
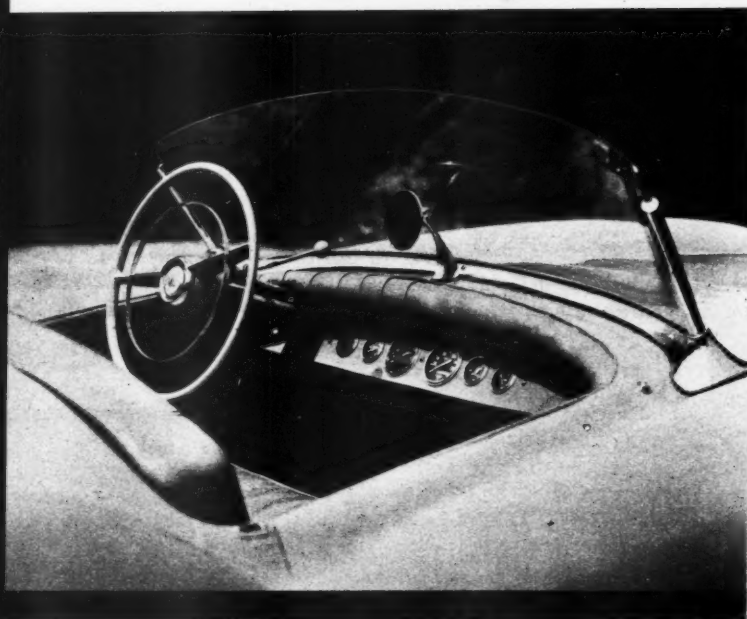
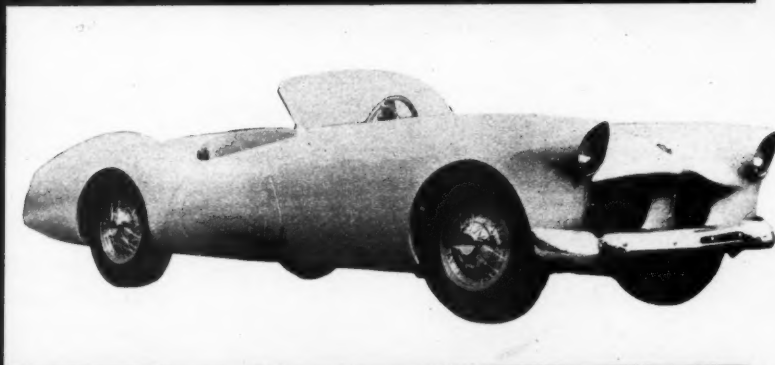
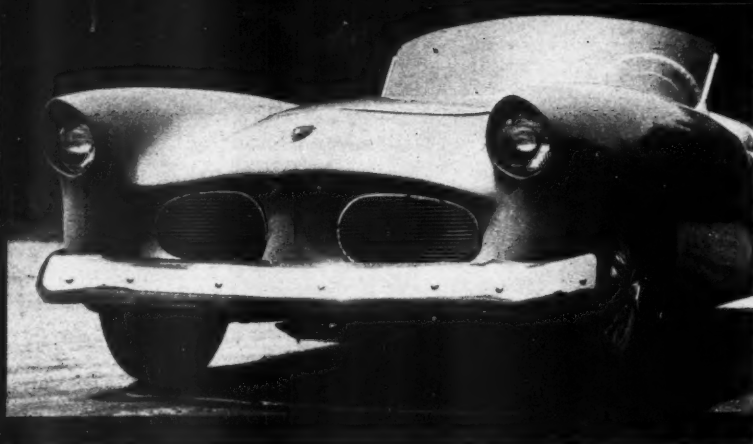
Built of Fiberglas, the Stardust sports car body is adaptable to almost any chassis. Grantham expects progressively stepped-up production to meet the demand.

The Stardust may be purchased as a complete car (\$3750 F.O.B. Hollywood) on a modified Ford chassis shortened to a 110-inch wheelbase, or as a body kit (\$950 includes windshield and hardware). In order to fit under the low hood, the engine has been lowered five inches and set back 19 inches. The complete car weighs 2650 pounds.

Far-forward headlights and contoured grille of pleasing design give the Stardust its eye-catcher appeal.

Photos by Jack Campbell

September 1953



Forty-five



DRAG IT

All kinds of drivers now meet for this new sport, safely off crowded Sunday highways



the drag . . . This pair of stock cars in the heavy sedan class rocketed from the starting line in close formation, but arrived at the finish line three car lengths apart. The victor, the '53 model on the left, was clocked at 80 mph through the traps

the strip . . . This road to fame is often littered with broken pistons, but cars of every shape, size, and description return to the Santa Ana drag strip each Sunday to try and beat existing records. This is a view of the strip from the starting line



SHORTLY AFTER WORLD WAR II, America's highways became increasingly popular scenes for speed contests. These racing duels acquired the name of "drag racing" and usually consisted of a joust between two cars or motorcycles to a predetermined point, or till something happened to one of the contestants.

Rapidly increasing accidents, the increasing number of sports cars and hopped-up stocks, and thousands of complaints set one state's problem right in the lap of the California Highway Patrol. Acting on the suggestions of the Patrol's Safety Education Section, men like State Patrolman C. A. Pollard (an expert motorcyclist) and William Nichols, manager of the Orange County Airport in Santa Ana, Calif., met with two young and enterprising speed enthusiasts. The seldom-used north runway of the sprawling airport was suggested as an organized drag race strip.

Starting with the blessings of organized speed enthusiasts' clubs throughout Southern California, C. J. Hart and Frank Stillwell formed the Orange County Racing Association, Inc., and opened the asphalt-paved, half-mile runway to speed competition. They hired a half-dozen

Motor Trend

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OUT!

A photo story by
Lester Nehamkin



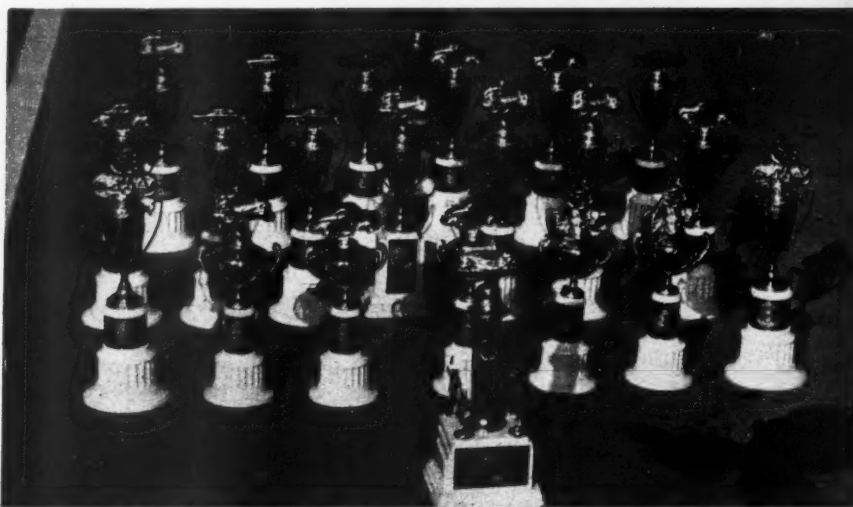
patrolmen and worked out a scientific electronic timing clock.

How they have succeeded is a fabulous story; now in their fourth year, they time over 1000 separate runs or trials and attract thousands of spectators every Sunday. They award at least 23 trophies in different classes, and the metropolitan dailies and racing newspapers publish the results.

Santa Ana's pioneer strip is paved for one-half mile with asphalt-covered concrete, and a sodded area extends for another half-mile. It is 90 feet wide and lined with roll-preventing logs. Actual times are taken over the first quarter-mile stretch, where the cars take off from a standing start. Electronic eyes are at the exact end of the quarter-mile and again 146 feet toward the starting line (the distance traveled in one second at 100 mph). A specially designed electronic clock (brainchild of Hart and Stillwell) instantly converts this measured distance into speed. From early morning to the lunch period, drivers race against time to set their cars up for the afternoon's session against each other. Then, through a process of elimination, winners of heat events meet each other till finalists and then prize winners are

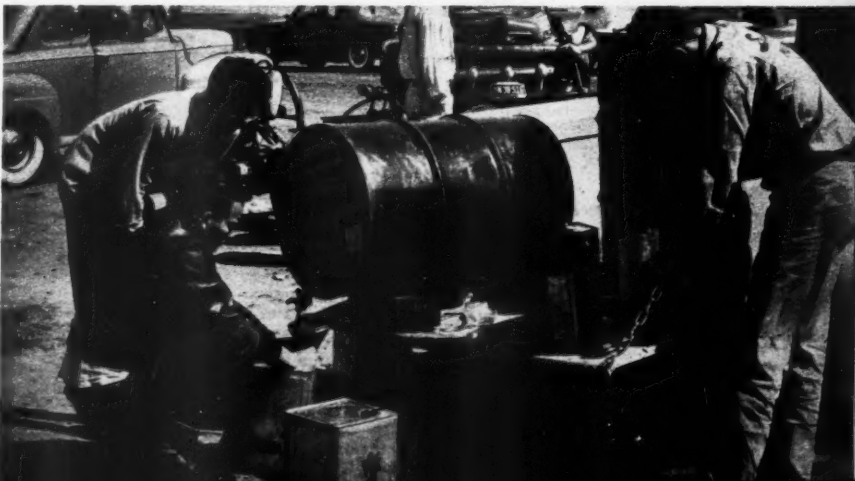


the timer . . . Don Tutbill gets set to announce a drag racer's time, as Paul Phillips waits to enter its speed on record sheet. About 1000 trials are recorded each Sunday



the prizes . . . These trophies are given each week to winners in every class. The 26 classes include "rails," roadsters, motorcycles, stock cars, and sports cars

the fuel . . . The self-service and self-mix "hot fuel stand" at the Santa Ana strip sells fuels that cost as high as \$10 per gallon. Average mixture costs about \$5.50



DRAG IT OUT!

continued

the drivers . . .

What's a drag race without the feminine touch? Pretty Jeri-Ann Stevenson's hand was just what her shiny '52 Hudson Wasp needed to roll it through the quarter-mile time trap at better than 72 mph. Under-age drivers must be okayed by parents

Even Cadillac owners get in on the fun. This '52 sedan was modified with dual '53 Cadillac "Quadri-Jet" carburetors and '53 heads and cams. The owner, seen below removing the chrome air cleaners, made a fast trip at a clocked speed of 84.69 mph

Bottom photo shows driver Richard Bill making a last-minute adjustment on his class C rear-engined roadster (standing behind Bill, lending moral support, is record holder Art Chrisman). This car, powered by a modified Merc engine, has turned 133.33



named in each class. There are four roadster classes; four motorcycle classes; five gas classes; and one each for heavy coupes and sedans, strip coupes and sedans, postwar stock cars, prewar stock cars, ohv stock cars, and late-model V-8s (under 300 cubic inches). If enough MGs (or whatever) turn up they have their own trophy.

Trained racing drivers, average motorists (both male and the fair sex), the Sunday driver, and even jet pilots try their collective hands and skill on the strips every Sunday. Only qualifications are that the drivers must be 21 years old or have a notarized release signed by their parents, and have the strip admission fee of 75 cents and the strip racing fee of \$1.00. There is no limit to the times a car may go down the strip. Thus the driver can have a whole day's fun.

In this rapidly mushrooming sport, spectators thrill to speed displayed by every conceivable make and type of car, from brand-new stock cars to the rail jobs (with skeleton framework) and special drag strip creations, which cost as much as \$1500 for parts only.

From a mediocre start in Orange County, drag racing is giving speed-minded Americans a chance to enjoy their favorite pastime and is also promoting and encouraging the motor racing sport on a national scale, while healthily decreasing speed contests and blood-letting on our crowded highways.



and the cars . . .

Probably driven quite conservatively all week long, the Cad seen above shows its Sunday punch, hitting the traps at 81 mph

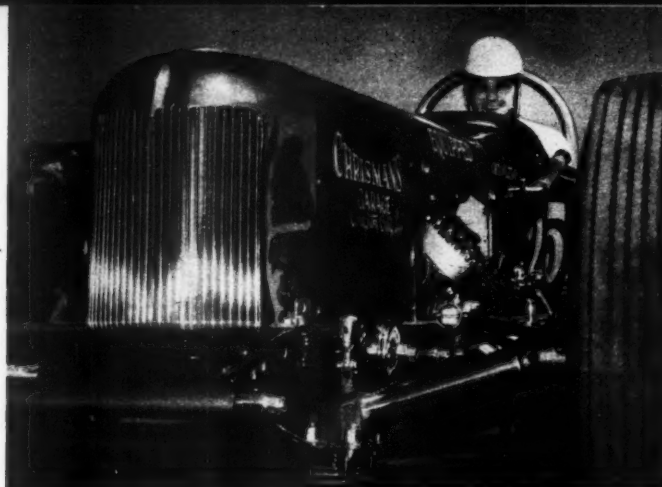
The glistening powerhouse at upper left is famous Chrisman-Neumeier roadster. Art Chrisman holds record at 140 mph

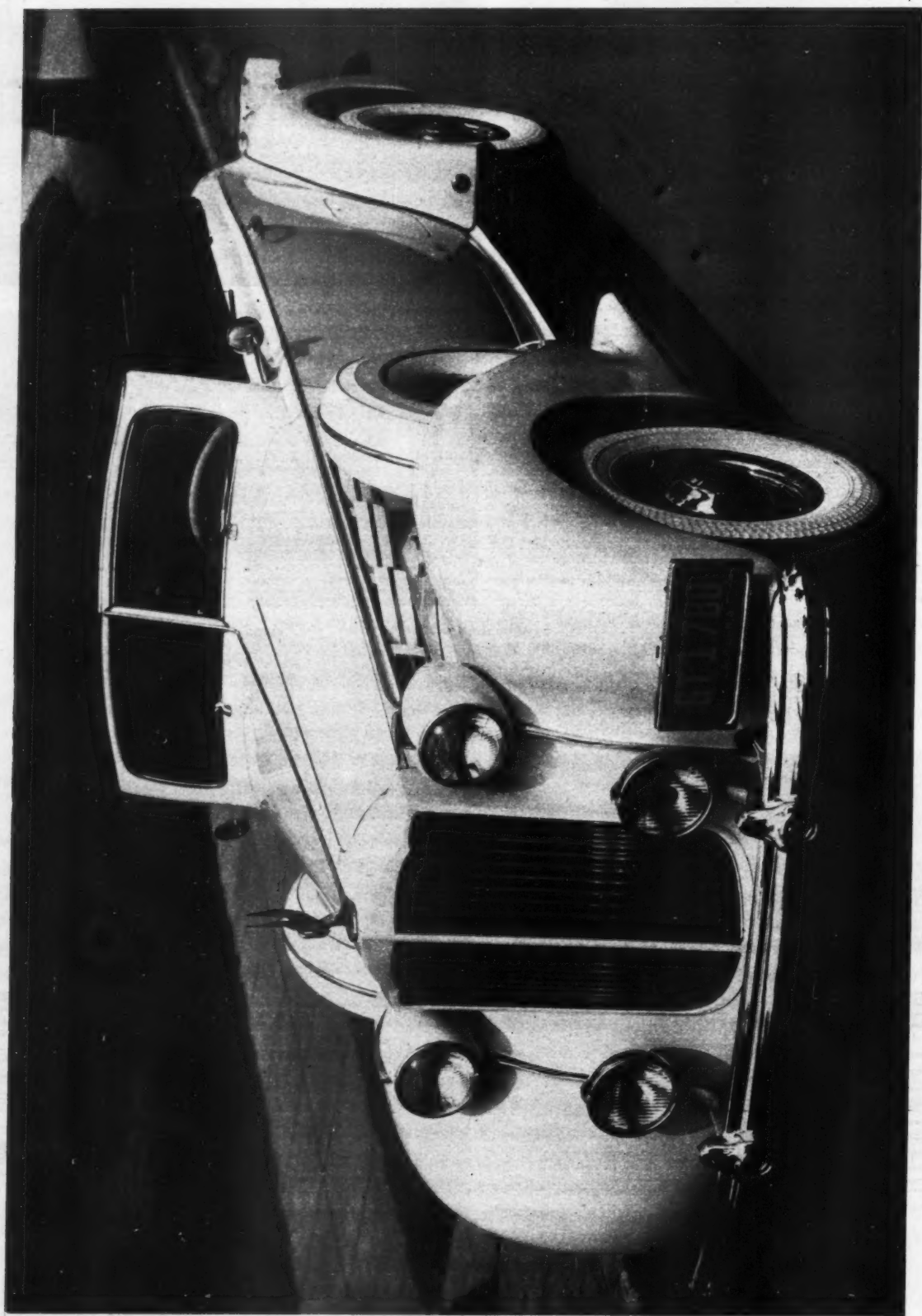
There's no nationality barrier at Santa Ana! Smooth little car at right, a German Porsche, was timed at better than 71 mph

The chopped machine at lower right is a class D drag strip coupe. Its V-8 powerplant sports triple carbs and a magneto

The Bell Auto Parts Special (bottom right) is powered by an upside-down, reversed Ranger aircraft engine with blower

The prize-winning "rail job" shown below was powered to 103 mph by its modified Model B engine. Driver is Floyd Scott





1938 Packard Twelve Convertible Coupe

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Packard

AN AMERICAN INSTITUTION

By Robert J. Gottlieb

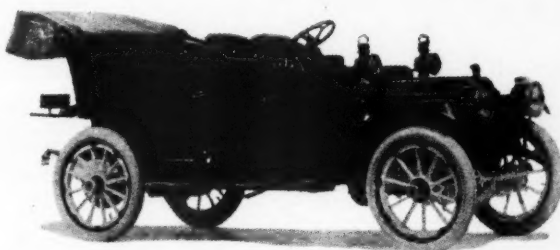
IT CAN SAFELY be stated without fear of contradiction that the majority of cars collected and hoarded by classic car enthusiasts are Packards. It can also be stated without fear of contradiction that throughout the years, the top custom body builders designed, and bestowed their efforts on, more Packards than any other make of car. These facts arose not as a result of accident but as a result of planning by the Packard Motor Car Company. To the classic enthusiast as well as the average American, the name Packard is synonymous with tradition. For Packard products (with two exceptions) were always a bit finer, more powerful, slightly heavier, and better constructed than competitive cars. The year 1904, the turning point in the company's rise to success, saw the creation of the distinctive radiator and hubcap design which was wisely continued through the years and exists faintly on modern products. Each new series brought additional fame and popularity, until the Packard was as much a part of America as hot dogs and baseball.

The car was never spectacular, but royalty rarely is. As American style leader, Packard's body changes were infrequent and occurred by degrees. The company cornered the fine car market in 1914 and kept its stranglehold until Cadillac took over in 1936. During this period no other car came close to achieving the prestige that went with Packard.

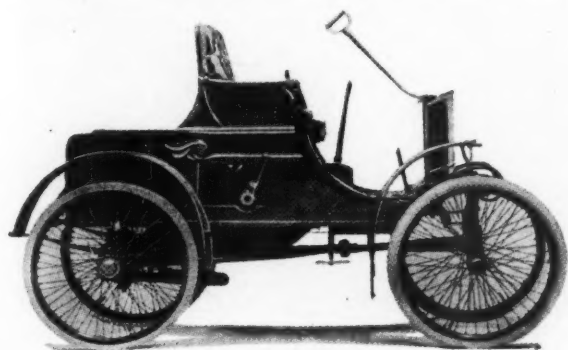
The history of the Packard—which is an integral part of American history—was governed, like everything else, by economic cycles. All progressive manufacturers alter their products according to economic conditions. During flush periods, cars are

heavier, longer, and more powerful. When belts are tightened, cars become smaller and more economical to buy and run. The Packard line grew and shrunk in accordance with these principles, and as a result, many smaller Packards are non-classic and are poor investments from a classic standpoint. This will become more apparent when the cars manufactured during the classic era are considered, but if you bear it in mind, it will help you in a better understanding of the development of the marque. Do you wonder about the large cars produced in depressions? During a depression the cheapest cars are the best sellers, but the most expensive outsell the medium-price products.

Hark back to the dim, dark days of 1899, when Grandmother worked a full week for a single dollar. Grandfather received two



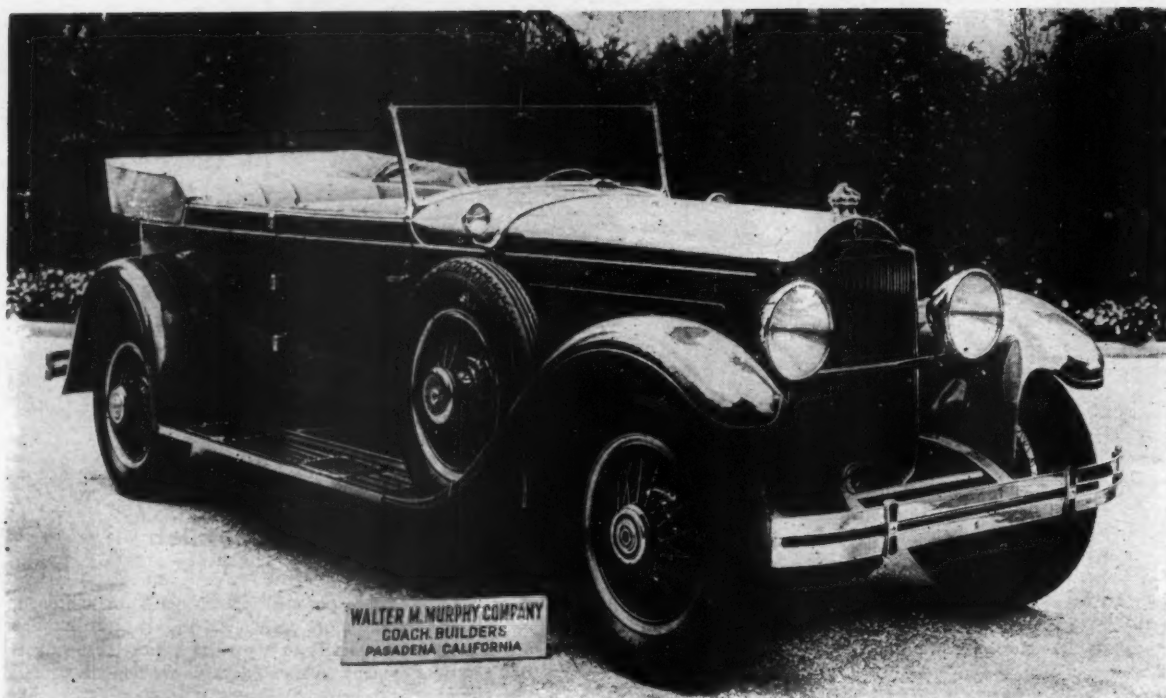
1912 Model 30



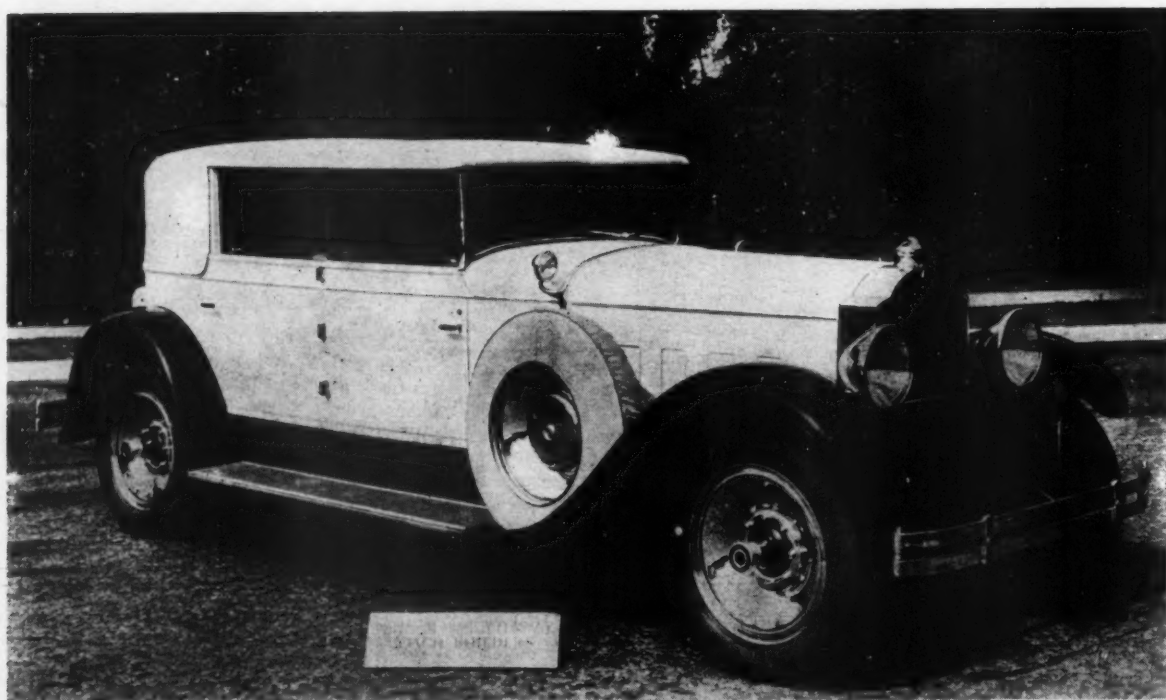
1899 Model A

and a half dollars for a full work week, but he was a skilled laborer and Grandmother wasn't. It was at this time that the partners George Weiss, James Packard, and his brother, Warren Packard, built the prototype mechanized buggy. Within a year they sold 12 cars under the trade name Ohio. In 1903 the name was changed to Packard Motor Car Company and the brothers were granted a patent on the "H" gearshift slot, which later became standard on American cars. Production had increased to 192 cars a year and they moved the plant to its present site in Detroit.

They called the original car Model A. Barely large enough for one passenger, it contained a single-cylinder, 12-bhp, horizontal engine with a chain drive. It progressed in 1900 to the Model B. The running gear was unchanged, but the B had a dos-à-dos seat and different sprockets so that it could reach a speed of 22 mph. In 1901 the car was called a C; a steering wheel replaced the tiller. While popular among early car buyers, the machine was



*Two versions of the convertible sedan on the 1929
Packard Eight chassis by Murphy of Pasadena*



Packard... an American Institution

continued

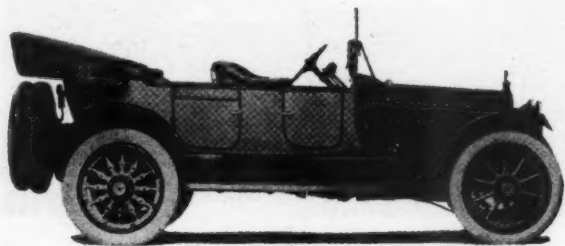
not as advanced as those that other progressive companies built (the first Jones speedometers were used in 1901 on Oldsmobiles, Autocar had adopted a shaft drive, and R. E. Olds produced 1500 curved-dash cars). But the Packard was rugged: five cars entered the New York to Buffalo run with 84 other competitors. Fewer than half the entrants finished, but *all five* Packards crossed the finish line.

In 1902 the F appeared. For the first time the car looked like a car and not a buggy. It had seats for four passengers and the "new" gearshift arrangement provided three forward speeds and a reverse. The car was sturdy and reliable, though not outstanding. It remained for the K, produced in 1903, to raise the company into a position of prominence and to achieve the first element of the prestige that was to follow. The K, instead of the customary one- or two-lunger, had the first four-cylinder engine in an American production car. The engine developed 26 bhp and was located under the hood, so the company was able to manufacture closed bodies. Further attention was directed to the marque when Tom Fetch (driving one of the older single-cylinder cars) struggled from San Francisco to New York in the remarkable time of 61 days. On the race tracks, Charles Schmidt, driving a Packard, gave plenty of competition to Ford's 999, Fosdick's Winton, and Fisher's Mohawk.

Much thought and engineering went into the 1904 model L from an esthetic as well as a mechanical standpoint. The distinctive radiator and hubcap designs first appeared on this model, and the factory was rearranged to build it on a production basis. The public took to the style as a duck takes to water, and the company promptly evolved a basic design plan which it kept unchanged through the years. It was so simple that it was ingenious. The company advertised that the car would remain new for 10 years and followed through with such minor changes that older models retained their style. So skillfully and cleverly did they follow their plan that a glance at any model except the post-World War II models immediately identifies it as a Packard.

Model N (1905) introduced a side entrance tonneau, a longer wheelbase, and more horsepower (obtained by boring out the cylinders). This increased the top speed to 45 mph. These cars ranged in price from \$3500 to \$7500. Although 500 of the N models were built in 1905, the company still manufactured the K as a companion line. Production that year included 22 trucks.

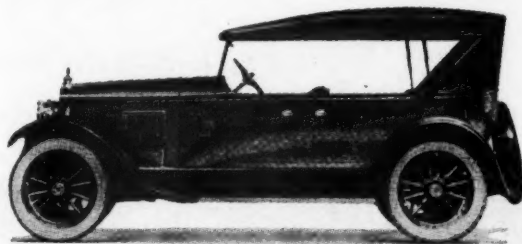
Henry Ford and Stevens-Duryea manufactured six-cylinder cars in 1906. That was also the year that Fred Marriott averaged 127.66 mph in a Stanley Steamer. Competition was on the increase and Packard countered with its S, a car featuring a 119-inch wheelbase, magneto ignition, and a carburetor with an auxiliary air valve and a hot water jacket. It had 24 bhp (less than the N) and the seven body styles ranged in price from \$4000 to \$7000. Older models were still in production, so the company had a wide range to offer the buying public.



1915 Twin Six

The depression of 1907 was in full swing when Packard introduced its Model 30, so named as a result of the horsepower generated. Again the wheelbase increased (to 123.5 inches) and despite declining prices and scarce dollars, the cars sold well. Economic conditions did not favor a new model in 1908, so the 30 was modified to permit the use of a lower and more comfortable body with 36-inch wheels. Ford introduced the "T," and with the depression continuing into '09, Packard again merely modified the 30 by redesigning the radiator core and eliminating the extra gearshift lever for reverse. In addition, headlights became standard equipment. Sales slowed down, so Packard introduced the 18 as a smaller edition of the 30. It looked about the same, but had an 18-bhp engine. The wheelbase was reduced to 112 inches, the price to \$3000.

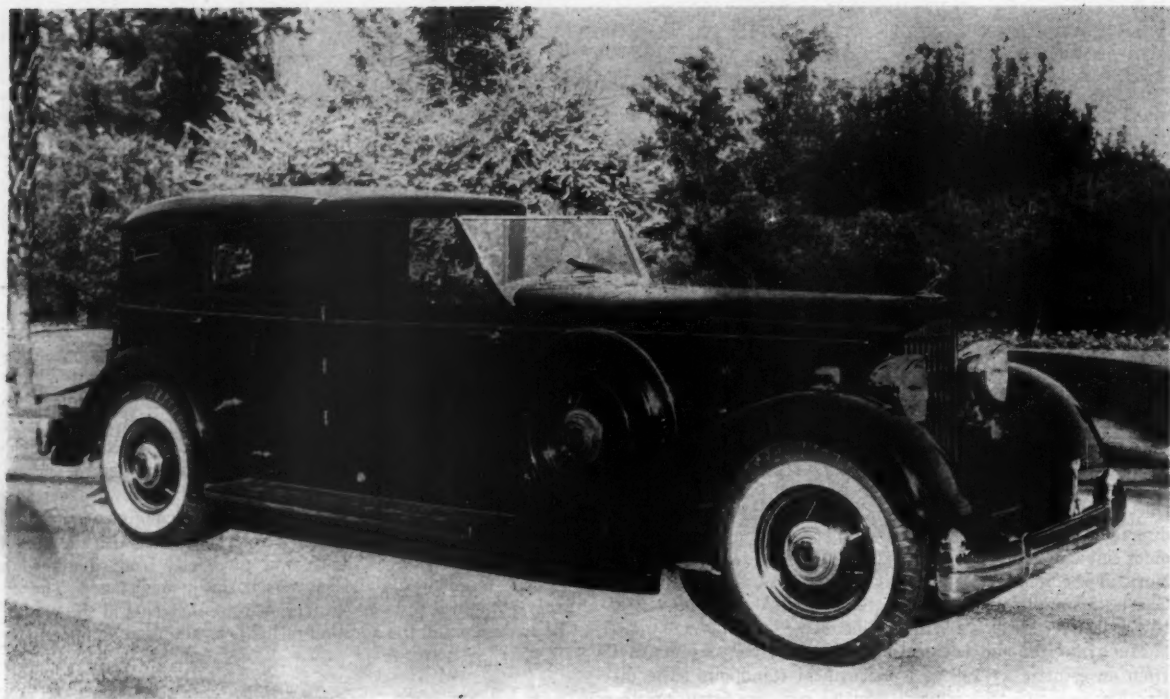
By 1910 economic conditions had improved. Although Packard still built the other models, it again concentrated on the 30. Front end treatment moved ever so slightly toward streamlining, and shock absorbers were standard equipment. Production went on the upswing and Packard continued with the model 30 in 1911. Again the body was modified: front doors were added; mechanically the car was basically unchanged. The 18 was still selling in large numbers with refinements in the way of body design and the addition of lights as standard equipment.



1922 Single Six

The last year of production of the famous 30 was 1912. Economic conditions were again favorable, and in 1912 Packard redesigned all its models. The four-cylinder engines were discarded and the famous sixes introduced in two new lines. The lighter and more competitive line was still called the 18. It had a 112-inch wheelbase on the standard models and a 108-inch wheelbase on the runabouts. Despite being a competitive car, the 18 was still a Packard, so dome lights, toilet cases, and speaking tubes were standard. Production centered on the 48, the first of the big sixes. Truly a luxury car, its wheelbases varied from 121.5 inches for the runabout to 139 inches for the touring cars. The six-cylinder vertical engine had a 4.5-inch bore and a 5.5-inch stroke and developed 48 bhp. Prices ranged from \$5000 to \$6550, the cars sold rapidly, and the company prospered.

The major change in 1913 was a force feed lubrication system, introduced on the 48 to replace the splash system. Next year the model 38, a light six-cylinder car, replaced the competitive 18. This car featured an electric starter and left-hand drive. Production also continued on the 48, which raised its horsepower to a whopping 82. The 38 series continued as the 238. Major changes included curved-tooth, beveled driving gears, a one-man top (it says here), electric lights with dimmers, and cylinders cast in blocks of three instead of two. Toward the end of the year this series was again improved and named the 338. The new cars sold for approximately \$1000 less than a companion



1934 Packard Twelve Town car by Bohman and Schwartz

1940 Packard Super Eight 180 convertible sedan by Darrin



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Packard... an American Institution

continued

series called the 548. It was in 1914 that Packard, along with other manufacturers, was stunned when Ford announced a \$5 per day minimum wage.

From a production and development standpoint, Packard assumed the prestige lead in 1915 when it marketed the Twin Six. Produced at a time when a four was considered average and a six a large engine, the public thrilled and gaped at the power-packed 12-cylinder engine that produced 85 bhp at 3000 rpm. The engine was a 60-degree V-12 with two banks of six cylinders. It had aluminum pistons, a three-inch bore and a five-inch stroke. About 3600 first series cars were built before the Twin Six acquired removable cylinder heads in 1916. So popular was the car that production increased to 10,645 in 1916.

By 1917, World War I interfered with passenger car production and Packard devoted its facilities to manufacturing Liberty engines. Nevertheless the Twin Six continued, with minor modifications directed to greater flexibility and better performance. Of necessity, passenger car production was low during '18 and '19 and the cars contained no major changes. Packard did score in 1919, when Ralph DePalma used a Packard to establish a speed record of 149.8 mph. In 1920 production machinery again commenced to roar, and again the company assumed the leader's role. The Lanchester vibration dampener was offered to the public. In addition to the Twin Six, Packard introduced the Single Six (the 116). It was built on a 116-inch wheelbase and powered by a six-cylinder L-head engine that developed 54 bhp. It was immediately a success. Sales increased from 1000 in 1920 to 6300 in '21 and 13,400 in '22.

The Single Eight replaced the Twin Six (outmoded because of its weight and complex engine) in 1923. The Single Eight was an in-line, eight-cylinder engine which incorporated a nine-bearing crankshaft and developed 84 bhp. Four-wheel brakes were used, in addition to a stop light, automatic windshield wipers, and optional front and rear bumpers. In '23 Packard introduced another new model, the 226, with an engine similar to the Single Six. The same cars were manufactured in '24 and '25, with built-in chassis lubrication, an oil rectifier, and better frames. All prices were reduced to meet competition. Few changes were made in the basic six- and eight-cylinder cars until 1928. From '25 to '28, bodies gradually improved, while the major mechanical improvements were hypoid gears, improved carburetion, and lubrication. With a turbo head and an 0.125 inch increase in bore, the eight increased its horsepower. Sales were at an all-time peak, and in 1928, the start of the classic era, Packard abandoned the six-cylinder engine for an eight in the lighter car. Times were merry, the larger line grew wheelbases up to 145 inches, bodies became more and more impressive, and the public bought Packards, Packards, and more Packards. Gar Wood used a Packard engine in Miss America VII to establish a speed record of 92.8 mph on water. As for the cars, yellowish shatterproof glass came into existence.

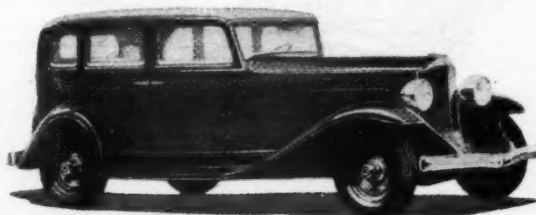
By 1929, adjustable front seats, inside visors, and adjustable

steering gears made driving a pleasure instead of a chore. The vacuum tank disappeared in favor of the mechanical fuel pump, better shocks were used, and the chassis lubricating system became fully automatic.

In 1931 and '32, in addition to the other series, Packard introduced the famous 901 and 902. They were lighter and shorter than the other models and were equipped with four-speed transmissions (later changed to three-speed) and ride control. The larger 903 and 904 had a front end stabilizer and still more horsepower.

The depression caused production of the 900 in 1932. This new "Light Eight" was offered at \$1750 to attract the disappearing dollars. The engine developed 110 bhp and the wheelbase was 127.5 inches. Most spectacular of all, the radiator was shaped in a V, yet retained the basic Packard design.

When dollars became scarce in the early Thirties, fine-car manufacturers grew frantic and instigated a cylinder race. As early as 1930 Cadillac produced a V-16, followed next year by Marmon. By 1932 Cadillac, Pierce-Arrow, Lincoln, and Auburn had 12s on the market, and Packard jumped anxiously into the



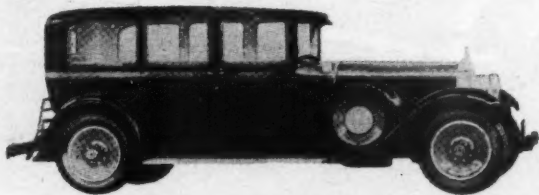
1932 Packard Light Eight 900

fray. The increase in cylinders brought more horsepower, the ultimate winner being Marmon with 200, followed by Cadillac and Pierce-Arrow at 185, Packard at 175, Auburn at 160, and Lincoln at 150. None of the 12- or 16-cylinder engines came close to developing the 265 to 320 bhp of the mighty Duesenberg.

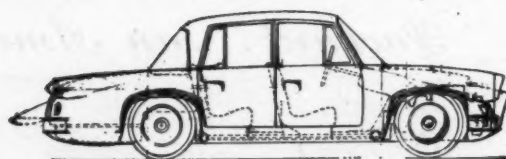
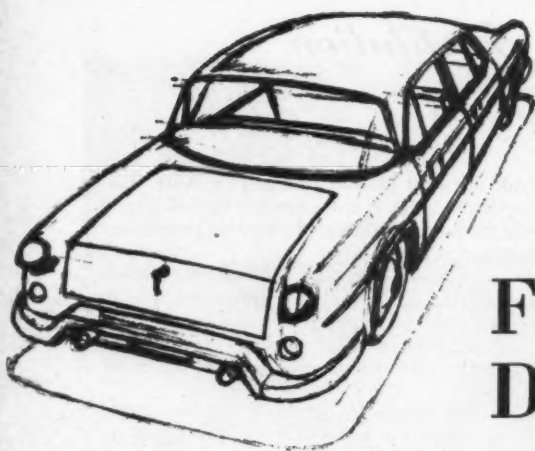
Thus it was that in '32 Packard proudly (and hopefully) announced the return of the Twin Six. From a classic standpoint, the most popular Packards are those Twelves built from '32 to '39, closely followed by the Super Eight, also developed during the classic era. Twelves developed their 175 bhp at 3200 rpm from a displacement of 473 cubic inches. They were undoubtedly the quietest and most flexible engines ever manufactured in this country. It is impossible to describe adequately the generous torque. The huge engines would easily start the three-ton, 139-inch-wheelbase monsters in high gear from a dead stop. Hydraulic valves cushioned noise, and the efficient engine was built to such exacting tolerances that it was both vibrationless and silent. The running gear was not built for acceleration or top speed but for effortless all-day cruising. The high torque reduced shifting to a minimum and the car was especially noted for the easy operation of its controls.

In keeping with company policy, the bodies underwent a minimum of body change during the eight years of production. From '32 to '34 the grille was built in a flat, vertical V. Fenders had skirts grafted to them and the slight windshield slant was increased. From '35 to '37 the grille changed from its vertical position to a pronounced slope. The windshield grew higher and

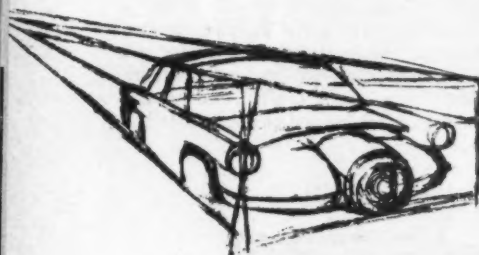
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1928 Packard Eight 443



From Dream to Drawing Board to ...?

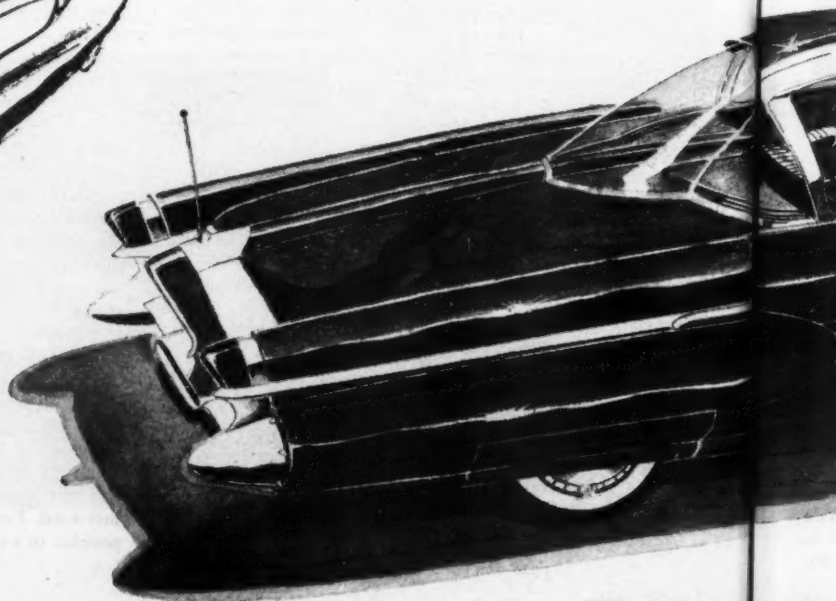
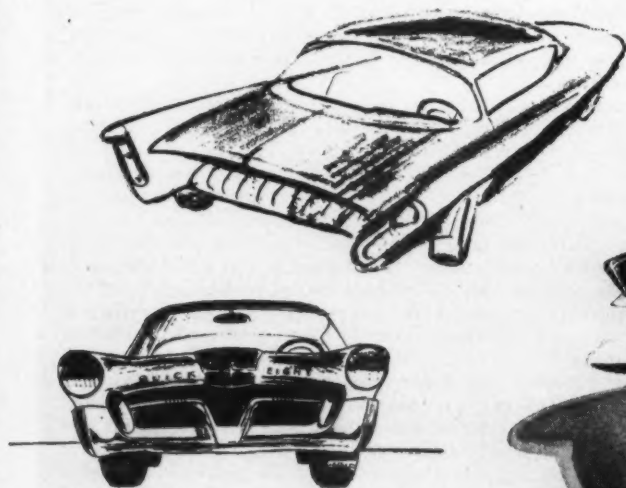


IS IT POSSIBLE for a contest to have an element of human interest? Perhaps the judges, after months of appraisal, may find it difficult to think of their impartial criticism as anything but a cold task. The contestants, while having a personal interest in the outcome, can find nothing heart-warming in the unseen mechanism of a contest.

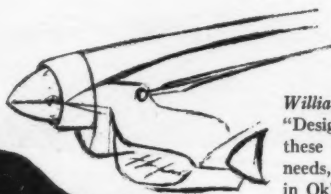
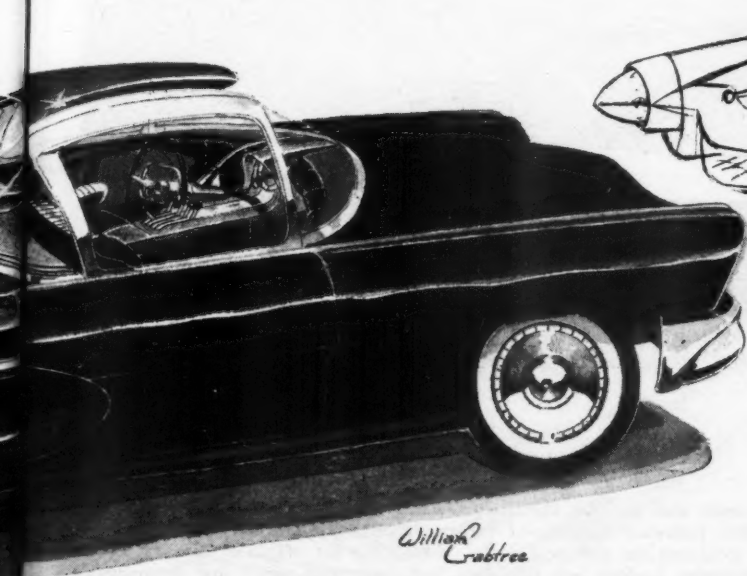
Nevertheless, we feel that the outcome of the MOTOR TREND Automotive and Industrial Design Contest has a warm, special meaning; a meaning that gives us a sense of pride, for now that the contest is over, we realize that we've had a part in the molding of a future—the future of each

of our winners, and perhaps the future of American automotive design. Still, the real pride rightfully belongs to the contest winners, for by earning a scholarship to the Art Center School of Los Angeles, they have gained the opportunity to make their dreams come true.

Who are the winners? They come from all walks of life: one's an Army private, another a salesman; one is an apprentice in an advertising firm, another a draftsman; the fifth winner was graduated from high school just last spring. Their names and samples of their work appear on these pages. Congratulations to all on a job well done!

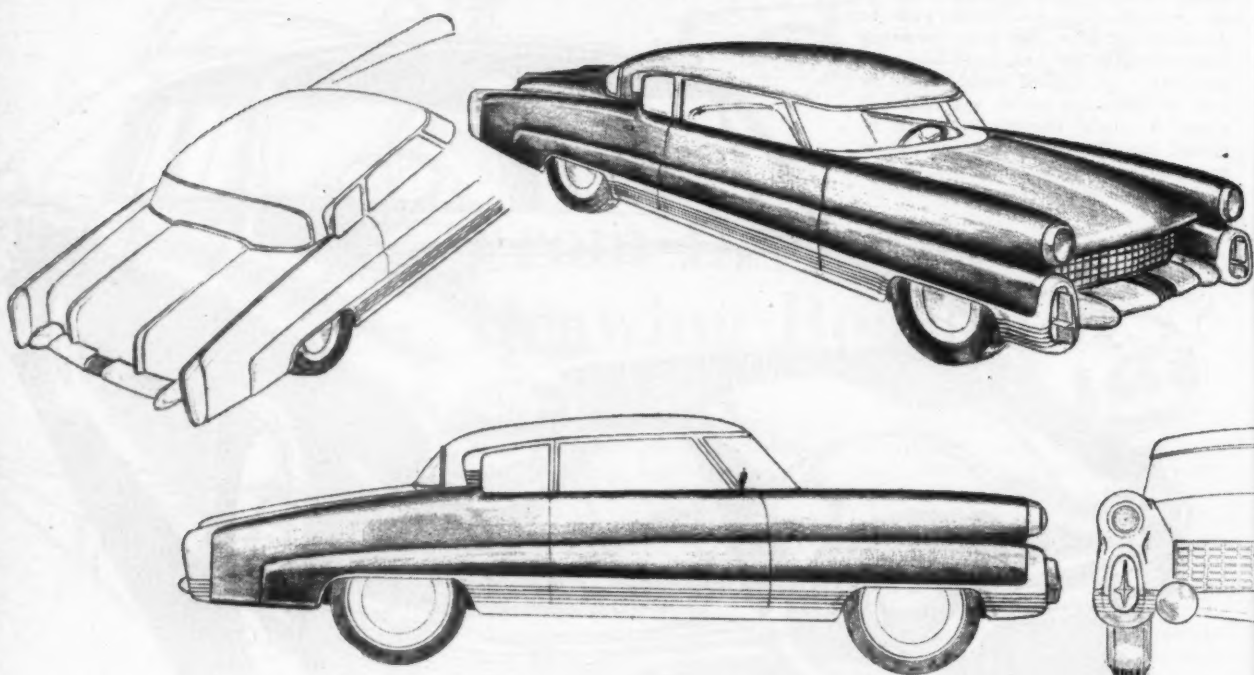


McKinley W. Thompson Jr., Asbury Park, N.J.—In a departure from the norm, prize-winner Thompson feels that in the case of this post-1963 car, aerodynamics will be sacrificed for more functional roominess and reduced size. The car pictured here, powered with a gas turbine engine, would be built of lightweight metals and reinforced plastic. A tubular titanium frame will be molded into the hull. Suspension will be pneumatic or torsilastic, independent on four wheels; wheels will be magnesium.



William King Crabtree, Long Beach, Calif.—“Designed and engineered for the future with these principles in mind: the safety, the needs, and the comfort of the public.” Born in Oklahoma 18 years ago, William Crabtree is approaching automotive design with ideas well ahead of his years. He believes in simplicity of style, a maximum of safety and design that is practical, attractive, comfortable—yet low in cost. The coupe at left looks nearly “sonic” in concept, but it utilizes all the desires of the designer, who feels that this car *could* be developed in the next 10 years. The rear-engined car would be the size of present cars in the low-price class. Controls are centrally located. As the doors slide back, the glass is raised into the roof. Air scoops are more than decoration; scoops on the sides cool the engine and the brakes; an air scoop on the car’s roof provides fresh air for the air conditioning system. The fact that this car, and variations of it, are designed to seat either two or four people at the most, is an indication of the trend to specialization in our cars of the future.

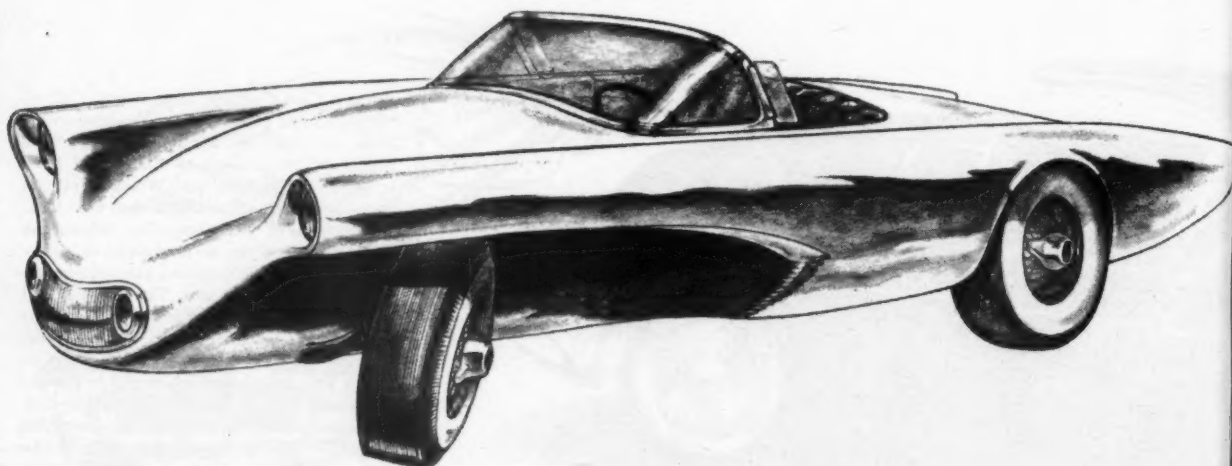
From Dream to Drawing Board to . . . ?



Homer Keith Teter, Elkins, W. Va.—Although conventional in design, the two-door sedan above illustrates a mid-point in development within the next 10 years. Homer Teter agrees with Raymond Loewy that cars should have a "lean and hungry look." Features will include lower, flatter hoods

(made possible by the use of short, V-8 engines), cleaner appearances, and slightly smaller exterior dimensions; wire wheels will again become a thing of the past. Design may be given new freedom by plastic materials and changes in engine design. He feels that the present horsepower race will change

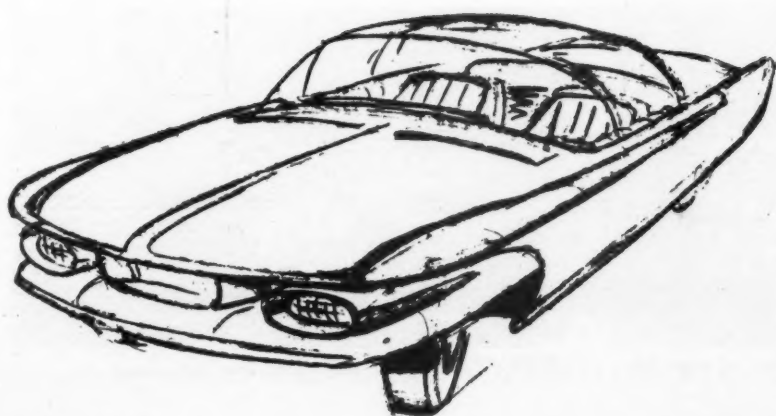
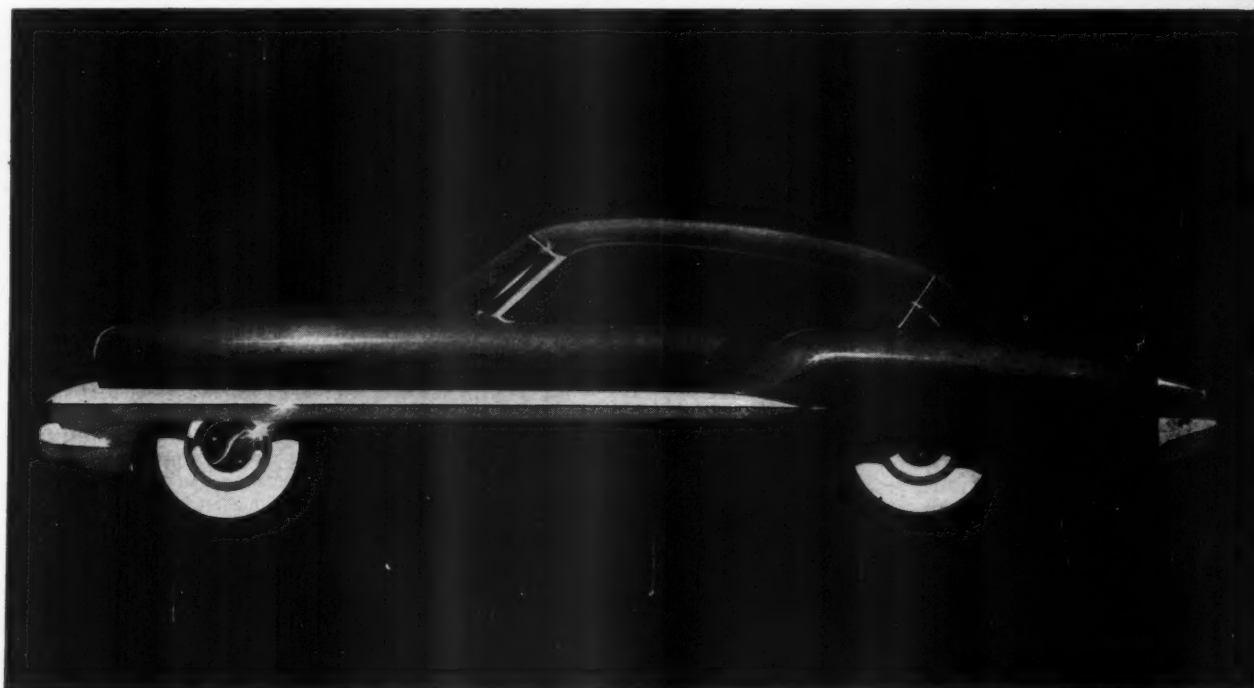
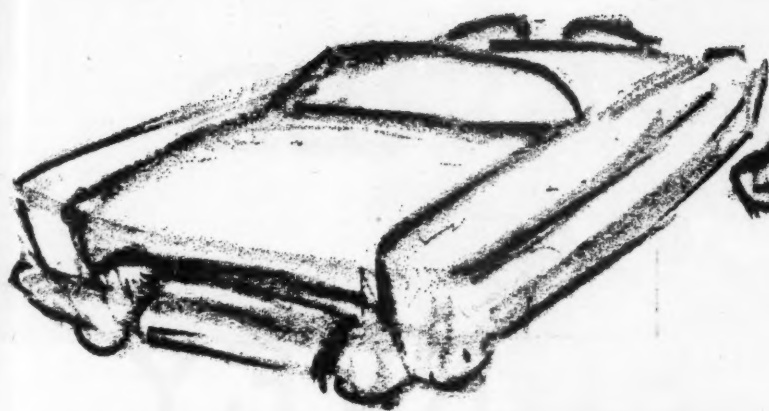
course, developing into a race for smaller, more economical engine designs with power equal to our present engines. Surviving metal-bodied cars will use step-down design for a lower center of gravity; chrome will continue to be used in abundance, but used more tastefully and functionally.



Charles Allen Ball, Buffalo, N.Y.—"Future styling will be composed of clean, handsome, elegant, flowing lines with emphasis on safety, comfort, and efficiency." When Charles Ball was born in Buffalo in 1927, ideas such as he expresses today were practically nonexistent. Now, however, stylists can plan on

working wonders with materials like Fiberglas—and this contestant was one of the many who recognized the usefulness of the marvelous material. Looking well into the future, Charles feels that as world conditions improve, keen manufacturing and merchandising competition will take shape, re-

sulting in stylings which will "capture the mode of the age of speed in which we live"; considering the individual, Charles believes that "men with ability and determination will accomplish sensational results, and in turn will be well rewarded by the automotive industry."



Dick F. Soules, Grosse Ile, Mich.—"It is my opinion that the trend in design will be toward simplicity." Dick feels that hood and fender lines will become flowing, with hoods, in particular, becoming shorter and sloping to permit greater visibility. Automotive styling in the next 10 years will include such ideas as padded instrument panels, better seating arrangements, and safety belts. Tail-lights will be enlarged, and more and more power-driven accessories will be used to make driving a greater pleasure with no added effort. The present wire wheel vogue will not last very long, because it does not fit in with the modern, streamlined American stock car. Dick feels strongly that cars will not become larger, yet holds no hope for the future of the "small car." In summing up, this contest winner says that the car of the future will be "more automatic than anything on the road today."

WORLD CAR SURVEY

By MT Research Staff

Ever see a Saab? Or a Toyo Pet? Here's how they build cars around the globe

THERE WERE IN OPERATION throughout the world, as of January 1, 1953, 76,135,329 cars, trucks, and busses, with a U.S. total of 52,608,394 privately owned vehicles. This total does not include some one million military vehicles, and perhaps another 10,000 units that were not in the final totals but are assumed to be in operation in some of the island areas.

With the world's population standing at some two billion, it could be remarked at this point that there are an awful lot of people still walking, but be this as it may, it is time for another survey of the world's automobile industry.

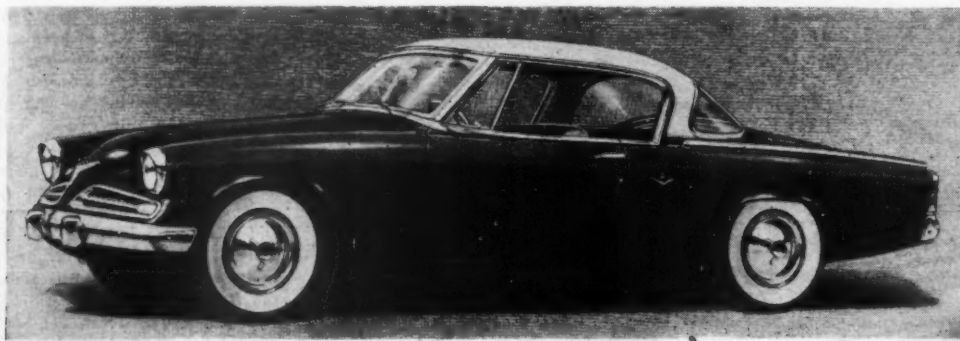
UNITED STATES

The United States continues to dominate world markets (total export volume for 1952 was 297,259 units). These are new cars only, and include cars, trucks, and busses. Translated into dollars, this total represents \$1,166,577,561. It is down 9.9 per cent from 1951, a general trend in the world picture. Also noteworthy is the trend toward higher exports of income-producing vehicles—trucks and busses—compared to passenger

cars. This pattern suggests a great potential private car market overseas awaiting a more stable world. To get a more comprehensive picture of the whole international situation, we have analyzed each country's automobile industry. Now we shall see just exactly who makes what and how many, and also what the overall trends in these nations are.

This country, of course, still puts out more cars than any other producer. But the direct result of our immensely efficient production is that our variety is among the most limited. To be fair, we must consider variety in terms of types of cars available to the ordinary purchaser. Seventeen major car manufacturers put out a total of 45 models. The highest horsepower is 210 in the Cadillac; the lowest is 68 in the Henry J. These horsepower ratings are high, and consequently the gas consumption of the American car is high when compared to the cars of other countries. But that is not awfully important in the U.S. Even with recent price and tax increases, gasoline is much cheaper here than in most other countries.

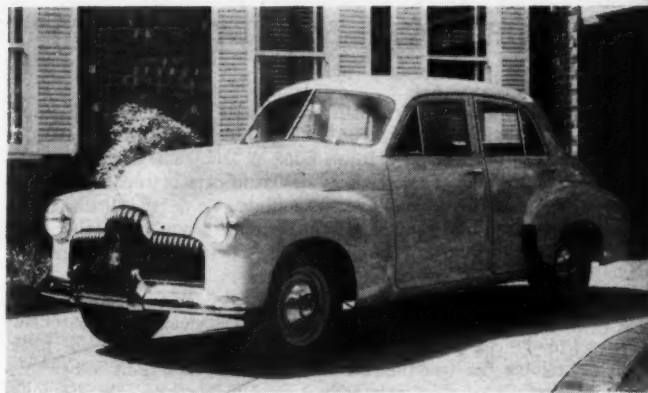
American designers have long been in favor of large and spacious vehicles. Most manufacturers had said until recently that there was no need for a small U.S. car. This has been some-



An outspoken radical in the matter of body lines, Studebaker's '53 hardtop may start new U.S. trend



Britain's neat little Jowett Javelin has a pancake engine



GM builds the Holden down under, could sell it here at home

what disproven by the influx of the many small cars from Europe, and the interest that some of our builders are taking in the problem. The general trend in the American car seems to be to higher horsepower, more automatic gadgets, and a general plushness throughout, even in lower-priced cars. As a result of the European challenge some of the more "sporty" American models are equipped with wire wheels, and we are seeing all manner of sporting prototypes used as publicity gimmicks (they also serve as feelers for styling preferences). The only experimental model so far to see the light of production is the sharp little Corvette, by Chevrolet. While the production of this car will be limited, it shows that Detroit has taken to heart the fact that the American public is interested in sports cars and will, when the pressure from outside sources is strong enough, give the people what they want, rather than what Detroit *thinks* they want. Some of this pressure resulted in Studebaker's bringing out a new line patterned after European styling. The coupe with the V-8 engine is perhaps as pleasing an all-around car as can be found. To fit American tastes, its V-8 engine puts out 120 bhp at 4000 rpm, and an automatic transmission is optional.

GREAT BRITAIN

Great Britain, the nearest competitor for world markets, has 33 manufacturers who make some 66 models. Their horsepower ranges from 160 in the Jaguar to 23 in the Ford Anglia. Most of them are what we in America call small cars. For many years the automotive economy of England has been geared to low gas consumption. Also, the nature of the English roads makes long-

wheelbase cars awkward except on the major highways. Any trend in design in the British cars has not yet influenced the overall size, but in trying desperately to draw conclusions from the inroads that they have made in the American market, our English cousins have Americanized their body styles. This has not been entirely successful, because the lines in American cars depend on a long wheelbase, and cannot be compromised to fit a short, narrow chassis layout. Consequently the average English sedan, while it is usually an excellently built machine and very economical, falls short stylewise in the American mind.

This is not true of the open models or sports cars. These have met with great favor and are the mainstay of the British industry in this country (MGs take more dollars back to England than any other make). Elsewhere in the world, particularly in countries that are parts of the British Empire, where economy of operation is a major factor, the market for the British product still holds.

Typical of the British wit, the price of the Conquest is £1066 (the date of the Norman Conquest was 1066 A.D.).

One of the more interesting British cars is the Jowett Javelin. This medium-sized sedan is powered with a flat-opposed four-cylinder engine mounted well forward. The engine develops 52.5 bhp @ 4500 rpm and moves the car along at a maximum speed of 80 mph. Mileage is 25-29 mpg. It is not a pretty car, but as is the case in most of the British machinery, performance comes first.

The English still have a major grip on the luxury vehicle department. Rolls, Bentley, Armstrong-Siddeley, and Daimler are names that reach far back into the tradition of quality and class, and they have not relinquished a bit of this tradition to any car in the world today. They are large cars and are best



Czechoslovakia's Tatra T87 has had rear engine for 19 years



Latest to fly Tricolor is this twin-cylinder Dyna-Panhard

WORLD CAR SURVEY continued

known in Europe as limousines for state occasions. In this country they fill a gap where Cadillac and Packard now leave off; during the classic era it was filled by Duesenberg, Pierce-Arrow, and the like. The trends of design in cars of this category remain relatively stable. It is unthinkable in the British mind that tradition should be broken to the point of making them look "modern" by our standards. These are "class" cars and that is that.

A complete change of pace for the Daimler organization resulted in the Coronation-timed announcement of a reasonably low-priced and fine-performing medium-sized car. Still maintaining the traditional Daimler styling, and using a new 2½-liter (129-cubic inch) ohv six-cylinder engine, the Conquest provides comfortable seating for four. Using a fluid flywheel and a four-speed pre-selector gearbox, the car has an average maximum speed of 80 mph, and gets 20 mpg.

AUSTRALIA

Australia is an unlikely place to look for a big car industry, but General Motors' Holden's Ltd. is planning to use Australia as a base for building up exports in the Pacific countries. A recent \$25,000,000 expansion program will lift the production of the Holden car from 35,000 to 50,000 a year.

The Holden is a car designed to fit a local need, but it could very well fit the economy of the United States as a second car. It is powered by a six-cylinder, overhead-valve engine; bore is three inches and the stroke is 3.39. These specifications put it into the small car class as far as our standards are concerned, but it is a medium-sized machine by world standards.

Performance-wise the Holden is interesting. Considering that its displacement is 132.2 cubic inches and its weight 2130 pounds, a top speed of 80 mph and 24 mpg are pretty reasonable figures. By using Australia as a stepping-off place for exports, GM will be able to reach markets in dollar-short countries, and at the same time satisfy a demand for a smaller and more economical car than American plants are producing.

CZECHOSLOVAKIA

Czechoslovakia's pride is the Tatra. The Tatra was one of the first rear-engined cars to be put into production. Again it is not a big car by our standards. The engine has four cylin-

ders, producing 51 bhp at 4000 rpm. It has a displacement of 119 cubic inches. The top speed is reported to be 78 mph and gas mileage is around 19.

FRANCE

France, where a government is lucky if it lasts two months, also has engineers at work devising new ways to do the old job. Outstanding example of the trend is the Hotchkiss-Gregoire. This fine car was described in some detail in the August issue of *MOTOR TREND*. It features many innovations in construction techniques, including a chassis that is made up of only two large aluminum alloy castings. The engine is an 80-bhp, flat-opposed four, which delivers its power to the front wheels to pull the streamlined little beauty along at a speed of 93 mph. It gets 23 mpg at highway speeds. The remarkable small Citroen 2 CV would find no market whatsoever in our country, but nonetheless it is certainly worth looking at. It is powered with a two-cylinder, nine-bhp, air-cooled engine which drives the front wheels. The top speed is 37 mph, and gas consumption is 52 mpg. Top speed, of course, is not an important factor in Europe. Evidently the pace there is not nearly as fast as it is here. An interesting feature of the 2 CV is the headlight level, adjustable from within the car to take care of the variation in elevation with the addition of larger cargo. Other features include a simplified greasing plan with only four lubrication points, seats that are removable for use as chairs on camping trips, and generally good workmanship throughout. Such features are commensurate with Citroen's good name in the automotive industry and world market.

GERMANY

Germany, a country that can be looked to for innovation and much advancement in all things, it seems, but politics, has come up with some very interesting things automotively. The works of Dr. Ferdinand Porsche have been gone into at great extent, but not enough can be said about the remarkable Volkswagen and its refinement, the Porsche. Both of these rear-engined cars are examples of German industry at its best. Again the keynote in the German economy is, pardon us, economy. Yet while both of these cars get fantastic mileage, their performance is startling.



Germany's autobahn-bred DKW has a tiny two-cylinder engine



Italy's Fiat Diesel is not cheap to buy, but it gets 39 mpg

If trends in one major factory can be taken as an indication, the German auto industry is going all-out to pattern its production after American methods, and in so doing may, through mass production techniques, corner a part of the international market that has been the cherished possession of England. The Opel factory (a General Motors affiliate) at Russelheim-Am-Main has with the opening of its new die works presented a new model, the Olympia Rekord. Using the most modern machinery, including a 1000-ton press, the factory has already turned out some 400,000 of these little four-cylinder models.

In contrast to the Opel, which is built under conditions that parallel our own and is very much like a scaled-down American car, with few novel features, the vast Auto-Union plant has brought out several small cars of unusual design. These cars, too, are based on the theory that economy is most important, not only in the fuel department, but also in the production end. The DKW Meisterklasse, the smallest of these, is powered by a two-cylinder, two-stroke engine and has front-wheel drive. It has a four-speed gearbox (common practice in the small cars). Its gas consumption is 38 mpg, and it has a top speed of 62 mph. Also available is a slightly larger variation on the same theme, the Sonderklasse, a three-cylinder two-stroke. The body styles on these cars show typical German functional styling with a clean airflow line.

ITALY

Italy has come to be known in the last few years as the home of the Ferrari. However, most of these fine machines find owners well outside of Italy, and these owners are in the higher income brackets. We are more concerned here with the production of cars for the average purchaser, and in this field the Italians are masters. By our standards the small Italian car is far too small; by Italian standards they can't get too small. One little jewel is the Microbo. This tandem two-seater is powered by a 125-cc (7.625-cubic inch) two-stroke engine, mounted under the rear seat. The Microbo has three wheels, two in front and one in the rear. It has a three-speed gearbox, with the shifting lever on the steering column. It has hydraulic brakes, and the suspension is independent by coil springs. Another really new development in the Italian field is the Fiat Diesel. With diesel fuel 50 per cent cheaper than gasoline in Italy, it is only natural that a diesel car would appear. This engine is mounted in the standard Fiat 1400 chassis. The engine

develops 41 bhp at 3500 rpm, and with a five-speed gearbox the car will reach 62 mph. Fuel consumption is in the neighborhood of 39 mpg.

JAPAN

Japan, where the industry is a relatively small one, concentrates on small cars. Of these the Toyo Pet is perhaps the most interesting. Its four-cylinder engine puts out 27 bhp at 4000 rpm. The sedan weighs 2,579 pounds and has a top speed of 54 mph. There are also in Japan a lot of really small, motorcycle-powered machines, used mostly as commercial carriers. The Japanese industry is at the moment only trying to supply the need of Japan herself, but will in time service a good bit of the surrounding area.

SOVIET UNION

The Soviet Union is always a question mark in world society. Its motor industry has been not much publicized of late, but some information is available. Several cars are in production, each filling a planned and specific market. The smallest of these cars, the Moskvich, is basically the 1939 model of the German Opel Cadet. Its dies were obtained as war reparations from the Germans. Next in line, and a car that differs from the rest of the Russian vehicles in the extent that it is not a copy of another car, is the Pobeda. This car appears to have been designed from the ground up, and to be a rather straightforward approach to a specific problem. The car is a 5-6 seater sedan, with four doors and four windows. The chassis is of unit construction, and the engine is a four-cylinder side-valve that delivers 49 bhp at 3600 rpm. The whole car weighs 3000 pounds.

Having been designed with particular conditions in mind, and pretty severe ones at best, the Pobeda incorporates various precautions to keep servicing needs to a minimum. A lot of thoughtful engineering went into the lubrication system as well as the cooling and air intake filtering. While the Pobeda and the Moskvich represent the cars that the private citizen can buy in Russia, attempts have been made to set up an export trade with other countries. There is an assembly plant in Poland, and the car is sold in Holland and Finland.

Other cars in the Russian group, not readily available to the average citizen, are the Zim and Zis. These limousines are avail-



This four-cylinder Toyo Pet is one of Japan's larger cars



Rugged Pobeda (Victory) is first truly original Russian car

WORLD CAR SURVEY *continued*

able only to high officials of the government and other persons of importance. There is nothing startling about either of them; the Zis has a more than accidental similarity to the '41 Packard, and the Zim seems akin to some of the later model Buicks.

Since a great portion of the Russian auto industry, as well as much else of the Russian economy, has been channeled to a production-for-use pattern, it is only natural for us to assume that a great effort has been bent in the direction of service vehicles, and this is indeed true. Many large and very useful-looking working vehicles come steadily off the assembly lines from factories all over the U.S.S.R.

It is safe to say that there will be no immediate radical change in the Moskvichs and Pobedas, and that they will continue to come off the line for years to come.

SPAIN

Spain has one of the most controversial cars of all time. Named after the mythical flying horse, the Pegaso may well match its namesake. The cars have made several appearances at motor shows throughout the world. The styling is certainly advanced, and so is the performance (MOTOR TREND, July, 1953). Powered by a V-8 engine of 150.8 cubic inches, with a compression ratio of 8:1, top speed is in the neighborhood of 127 mph. Gas mileage is 21 mpg. The car is of obvious Italian origin, and it has been said that it was designed by one of the great Italian designers. It has made a couple of appearances in racing events, but its performance has been far from startling. Perhaps, when all of the bugs are worked out, the Pegaso will live up to its expectations.

SWEDEN

Sweden has a novel small car in production. The Saab 92 uses a two-cylinder, valveless two-stroke engine, and has a front-wheel drive. The car is a small two-door, four-passenger sedan, with integral body and frame. The engine is mounted transversely across the front of the car, and the suspension is independent, by means of torsion bars on all four wheels. Through aerodynamic styling and construction, the 25 bhp engine moves the car along at speeds in excess of 60 mph, and gets 40 mpg.

An interesting sidelight on the manufacturers of the Saab is that they are not primarily automobile builders. The Saab is a by-product of a jet plane factory, whose management found a need for some additional peacetime work, and decided that people would be happier working on something allied rather

than, for example, on bathtubs. The aircraft techniques are a major factor in the development and performance of this car. This trend of using new techniques in car manufacture is in evidence in almost all major countries. In America, and to a lesser extent in England, we see a certain reluctance to do something new in the basic engineering department.

THE WORLD TREND

We set out to plot a trend in the world's automotive pattern so perhaps we had best sum it all up.

America produces more cars than anybody, but the pattern of our production has been set by years of success. The result is a series of automobiles entirely suited to their purpose, but far less advanced creatively than those of almost all other countries. The formula has worked so well for so long that Detroit has seen no need to experiment, and consequently there have been no really basic changes in the American car for about 20 years. We have automatic transmissions, overhead-valve V-8s, and many other mechanical features, but the basic engineering of the chassis layout remains as it was many years ago. There has been no action in the direction of the use of aluminum, for instance, and only recently has Detroit looked seriously to Fiberglas. The industry has so much money invested in its monstrous plants that any change in the pattern is economically unsound. Europe, on the other hand, is so used to change that it has become part of the pattern. Lack of money and a generally lower standard of living have forced the designers to bend their efforts in the direction of economy cars. They have been forced to look to other fields for principles that they could apply. This has taken them into the field of the airplane for construction methods and into the realm of the motorcycle for the two-stroke engine.

Chassis design has been long a pet problem of most of the European designers. The rear-engined car, which has been talked about in this country for as long as anyone can remember, is and has been a reality in Europe for many years. The Porsche, Volkswagen, Renault, and Tatra are only a few.

America will continue to build big, powerful, but rather unimaginative machines that do their job well. Builders will make only minor concessions to the demands for a small, economical car. Europe will continue in its pattern, making good small cars for its own needs, and exporting small numbers of them to this country to fill the needs of Americans who are not entirely happy with the domestic product.

The Europeans will continue to dominate the sports car field until our industry sees fit to produce cars in this category. That does not mean luxury models like Le Sabre and the XP-300, but cars like the MG, Austin-Healey, and Jaguar XK-120.



Spain aims for moneyed buyers with super-luxurious Pegaso

Sixty-four



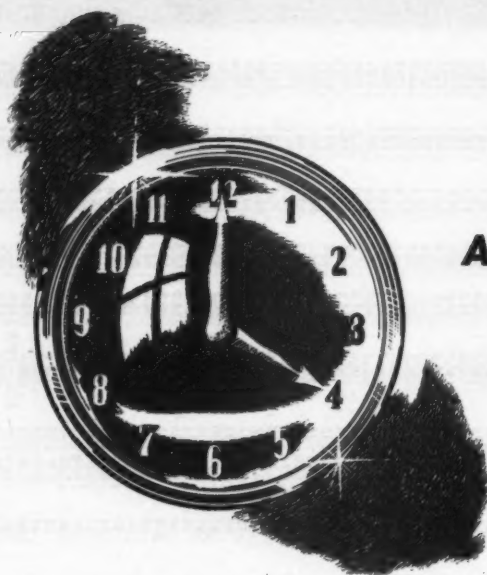
Sweden's winters demanded special design, got it in the Saab

Motor Trend

Motor Trend World Car Survey

NAME & MODEL	Price	Cyls.	BHP @RPM	Dist. Cu. In.	Comp. Ratio	Bore	Stroke	Torque Lbs.-Ft.	BHP/Cu. In.	Lbs./BHP	Fwd. Speeds	MPG	Top Speed	Tire Size	Wheel-Base	Tread Front	Tread Rear	Height inches	Turn. Dia. Ft.	Weight Lbs.
AUSTRALIA																				
Holden	1900	6	60@3800	132.2	6.5	3.00	3.13	106@2000	45	35.0	3	24	80	5.50 x 15	103.0	53.0	54.0	62.0	36.7	2130
CZECHOSLOVAKIA																				
Skoda	1900	4	35@4000	74.5	6.5	2.83	2.85	54@2500	47	60.0	4	28	65	5.50 x 16	106.0	49.0	52.0	60.0	36.1	2150
Tatraplan	2800	4	51@4000	119.0	6	3.35	3.39	87@2000	43	49.0	4	19	78	6.00 x 16	106.0	51.0	51.0	60.0	44.4	2540
FRANCE																				
Bugatti	1000	8	132@5500	198.7	6.8	2.83	3.94	194@3000	605	28.0	4	13	110	6.00 x 17	130.0	53.0	53.0	61.0	35.0	3550
Citroen 2 CV	2100	2	9@3500	22.9	6.2	2.44	2.44	17.1@1800	305	120.0	4	52	37	5.00 x 16	94.5	50.0	50.0	63.0	43.3	2060
Citroen 11	2550	4	55@4000	116.6	6.5	3.07	3.94	84@2000	47	41.0	3	21	75	5.50 x 16	114.0	54.0	53.0	60.0	43.3	2500
Citroen 15-6	2850	6	76@3800	174.9	6.5	3.07	3.94	144@2000	435	37.0	3	16	82	7.25 x 16	122.0	59.0	59.0	61.0	43.3	2900
Dacia	1700	6	89@3800	182.3	7.5	3.30	3.56	134@2500	485	37.0	4	15	84	6.00 x 17	116.0	54.0	54.0	61.0	38.4	2600
Dacia-Panhard	7100	2	37@5000	51.9	7.25	3.31	3.31	43@3500	715	36.0	4	31	78	5.50 x 17	116.0	54.0	54.0	61.0	41.7	3400
Ford Vedette	2850	V8	65@4800	131.7	7.25	2.60	3.10	91@3500	485	36.0	4	31	78	5.50 x 17	116.0	54.0	54.0	61.0	41.7	3400
Ford Comete	4850	V8	79@4800	143.7	7.4	2.67	3.20	105@2750	485	36.0	4	31	78	5.50 x 17	116.0	54.0	54.0	61.0	41.7	3400
Holden 11-50	4160	4	74@4000	141.1	6.6	3.39	3.92	112@2400	325	41.0	4	18	84	6.40 x 16	106.0	53.0	54.0	60.0	39.4	2850
Holden 20-25	4480	6	99@4000	212.6	6.38	3.39	3.94	169@2500	465	32.0	4	15	95	6.40 x 16	110.0	57.0	57.0	61.0	38.1	2980
Holden 20-25 Annual Sport	4480	6	126@4000	212.6	7.21	3.39	3.94	186@2500	465	32.0	4	15	95	6.40 x 16	110.0	57.0	57.0	61.0	40.7	2980
Holden 20-25 Annual Sport	4480	6	126@4000	212.6	7.21	3.39	3.94	186@2500	465	32.0	4	15	95	6.40 x 16	110.0	57.0	57.0	61.0	40.7	2980
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Holden 20-25 Annual Sport	4480	6	126@4000	212.6	7.21	3.39	3.94	186@2500	465	32.0	4	15								

NAME & MODEL	Price	Cyls.	BHP @RPM	Displ. Cu. In.	Comp. Ratio	Bore	Stroke	Torque Lbs.-Ft.	BHP/Cu. In.	Lbs./BHP	Fwd. Speeds	MPG	Top Speed	Tire Size	Wheel-base	Tread Front	Tread Rear	Height Inches	Turn. Dia. Ft.	Weight Lbs.
ITALY (continued)																				
JAPAN																				
Mazda Sport A63000	3300	6	90@5500	119.2	7.8	2.83	3.15	112@2000	.83	20.0	4	19	109	5.50 x 16	100.0	50.0	49.0	53.0	32.8	1890
Mazda A6 GCS	3000	4	130@4000	119.2	7.8	2.83	3.15	112@2000	.83	20.0	4	19	109	5.50 x 16	100.0	50.0	49.0	53.0	32.8	1890
Mazda A6 GCS	3000	4	130@4000	119.2	7.8	2.83	3.15	112@2000	.83	20.0	4	19	109	5.50 x 16	100.0	50.0	49.0	53.0	32.8	1890
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AROUND THE CLOCK, TWICE

A Jaguar Win

By Rodolfo Mailander

Photos by Kurt Wörner

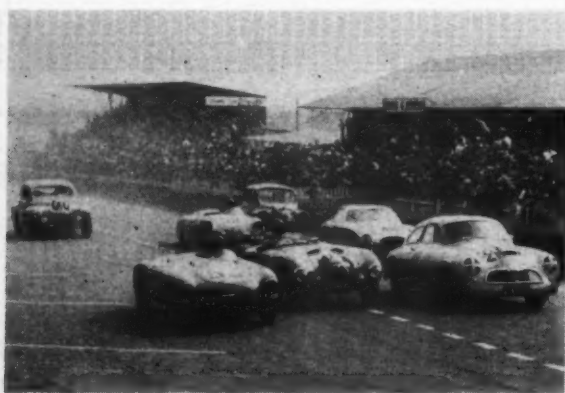


H-hour, the drivers dash for their cars. Numbers one, two and three are Cunninghams

B RITONS WILL NEVER forget 1953. The world shared in the excitement of their Queen's Coronation, and waited with bated breath the return of their Everest climbers; perhaps more limited in scope, but equally world-acclaimed, was the British victory in the 1953 Le Mans 24-hour road race.

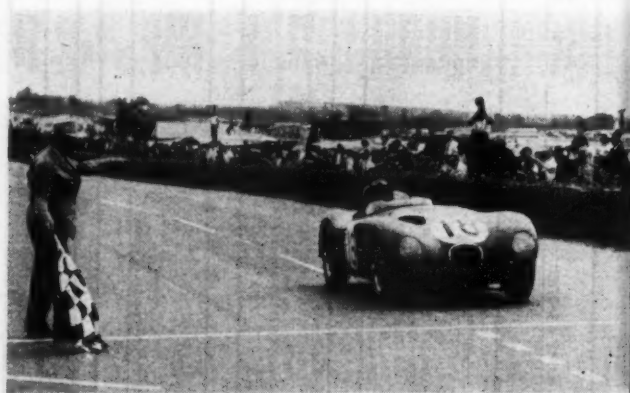
The performance of Britain's beloved XK-120 in the '51 Le Mans classic was somewhat overshadowed when a strong, calculating Mercedes team swept to a brilliant victory the following year; but because of mechanical improvement, better team organization, or a motive of revenge—call it what you may—the XK-120C proved its capabilities by finishing in first, second, and fourth places, and establishing a new course record with an average speed of 105 mph.

International laurels were not limited



An international traffic jam takes place early in the race. Cars include a pair of Renaults, an Osca, a Borgward, and a Gordini

Sixty-eight



Englishman Rolt crosses the finish line after averaging 105 mph for 24 hours. Stirling Moss brought in second winning Jaguar

Motor Trend

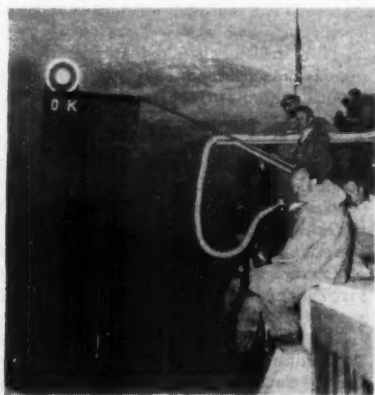


Cunningham team's Moran piloted one of three U.S. cars to finish among first ten

entirely to the British teams, however, for the third-place car was an American Cunningham, driven by Phil Walters and John Fitch. The brothers Chancel gave France a dual coup by winning the race on handicap (determined by displacement) and taking the coveted Biennial Cup trophy in a 37.2-cubic inch Panhard.

Class winners were: Cunningham, 305-488 cubic inches; Jaguar, 183-305 cubic inches; Gordini, 122-183 cubic inches; Frazer-Nash, 91.5-122 cubic inches; Porsche, 67-91.5 cubic inches; Osca, 45.8-67 cubic inches; D. B. Panhard, 30.5-45.8 cubic inches.

This year's Le Mans was a departure from past formats; rather than holding back, waiting for misfortune to fall upon the leaders, all drivers made consistent bids for the lead—the higher-than-ever average speeds prove that.



Austin-Healey driver gets nighttime okay. Fog slowed lap times only by seconds

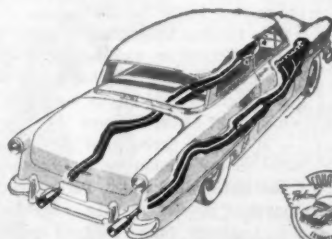
September 1953



THE '53 DODGE...NEW AAA RECORD HOLDER

WE TAKE YOUR DODGE RED RAM V-8 AND ADD PLUS POWER!

The sensational Red Ram V-8 has recently set a new AAA stock car record of 102.622 mph for a flying start measured mile run; also it whizzed to a new AAA standard of 72.325 mph for a measured mile from a standing start. Its flashing performance is largely due to its remarkable hemispherical combustion chamber, turning more fuel energy into useful power. And the installation of a Belond EQUA-FLOW Exhaust System on the Dodge will add even more power...even faster acceleration and give you increased gas mileage. Streamlined design and precision-engineered headers virtually eliminate the back-pressure that cuts so drastically into power and speed. So, if you're keen on extra performance and you drive a Dodge or any other V-8 car — install a Belond EQUA-FLOW Exhaust System. Sold with an unconditional guarantee covering workmanship and material. See your nearby dealer or write for information.



Southern California

MUFFLER CO.

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Sixty-nine

CUSTOM CAL SAYS: styled in **CALIFORNIA**

CHROME MOTOR KIT \$22.50

Chevy 1937-53

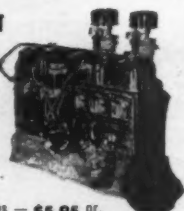
Includes chrome wire loom, red ignition wire, brass tips, valve cover and sideplate. A \$25.75 value if each item purchased separately. Get the complete kit and **SAVE \$3.25**

1937-53 Chevy Wire Looms — **\$5.95** pr.

with bright red ignition wire — **\$7.95** comp.

37-53 Side plate **\$7.95** 37-53 Valve Cover **\$8.95**

Items available individually at prices shown plus \$2.25 for wire and 60c for cap. Specify year and if Power Glide.



1949-52 CHEVY BULL NOSE MOLDING

Adds maximum of custom class at minimum of expense and effort. One piece molding installs in place of original unit without welding, cutting, drilling or painting. Extends from windshield to grille. Top quality stainless steel polished to chrome-like luster.

Only \$3.95

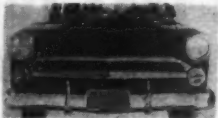
CUSTOM GRILLE BAR

1949-52

Ford

1949-50

Mercury



Gives massive custom look. Heavy gauge steel. Replaces complete center bar on '51-'52 without further alteration. NOTE: Added requirements (not included), for '49 and '50 Ford are '51 top molding & filling hood. Bar fits present parking lights. Specify year — **\$19.95**

1951 top molding available for \$8.95



FULL CONTINENTAL KIT

Get the real thing. Makes your car look richer, longer, lower. Cost is low too.

Improves appearance, increases luggage space. Folds backwards for trunk to clear. Kit complete with gravel pan, all metal tire cover, bumper extensions, installation diagrams. Painted in prime coat.

• Ford 1949-51 **\$49.95** • Ford 1952-53 **\$49.95**

• Chevy 1949-52 (Styleline) **\$49.95**

ELECTRIC

DOOR & TRUNK KIT

Practical electric conversions that make possible PUSH-BUTTON OPERATION for doors and trunk. Doors open from inside and outside. Easy to install and operate. Reliable and theft-proof. Throw away the handles, fill in the holes. Place push-button control where you want. Specify year and make of car.



TRUNK KIT — \$9.95 Fits Ford & Merc '37-'53; All G.M., '49-53 (except '49 Olds 98), Plymouth 1953

DOOR KIT — \$19.95 Fits all cars, all makes.

25% deposit on all orders. Prices FOB Los Angeles. Postage COD.

Add 3% Sales Tax in Calif.

SEND 25c FOR CATALOG OF LATEST CUSTOM ACCESSORIES.



Eastern Auto
"CUSTOM ACCESSORIES"

3319-MT-9 So. Grand Ave.
Los Angeles 7, Calif.

Packard...An American Institution

(Continued from page 55)

the overall body design improved with conservative streamlining. The engine also changed by increasing its stroke a quarter inch. This raised the horsepower from 160 to 175. The '38 and '39 models show the greatest change. The fenders became rounded; in fact, downright bulky. The windshield split and the headlights rose higher. The '39 differed from the '38 in one respect only; alternate grille bars were painted in body color in '39.

Though Packard had produced its finest product, its position in the prestige race suffered simultaneously. In 1929 Packard sold three cars for every Cadillac. By 1932 sales records were fairly even, and in 1936 Cadillac forged ahead and, of course, still maintains its position. Contemporary writers have attributed the decrease in Packard sales to the continuance of the Twelve to 1939. This is incorrect. Sales of the Twelve fell because the public could afford neither to buy nor maintain the cars, but the company's gravest error had occurred in 1935. In that year, in the face of decreasing sales, the company produced a competitive eight, the first Packard ever built to a price. Company officials had hoped that existing prestige would promote sales of the new 120. More than 12,000 orders poured in before the car was even built, but the sales impetus was short-lived, for the cars did not meet expectations. The company then produced the 110, a six-cylinder series, but again sales were disappointing. Packard had made the serious mistake of applying luxury design principles to competitive cars.

A long-wheelbase vehicle is handsome, notwithstanding a functional, angular body design. Mounted on a short wheelbase, an angular design is stubby and boxy, words that best describe the appearance of the 110 and 120. What's more, a low-priced car requires yearly changes to keep pace with competition, whereas a luxury car may hold its value due to a lack of change. From 1935 to 1941 the lower-priced Packards, though slightly modified each year, remained basically the same, and the public, clamoring for streamlining, refused to accept the hold-over lines of another era. The new 110 and 120 were never as economical as other competitive products and attained a reputation for having soft blocks. The competitive cars, some of which are handsome even today, were nothing more than ordinary cars. They fail miserably in meeting the definition of a classic, and from an enthusiast's standpoint it is a grave error to buy one of them expecting to get a real Packard.

It is only fitting that our feature car of the month should be a prime example of the series with which Packard achieved its greatest success. It is a 1938 Twelve with a 3.44-inch bore, 4.5-inch stroke, and a piston displacement of 473 cubic inches. Its wheelbase measures 134 inches and its dry weight is listed as 3555 pounds.

The tires shown are the original size, 8.25 by 16 six-ply, and the largest cross-section tire ever to be used on any American pas-

senger car. The 8.25 by 16 tire is not to be confused with the recently developed low-pressure tire of the same designation. It had more width of rubber contacting the pavement than any of the new low-pressure tires (regardless of their size) and was developed to fit a six-inch rim. This size casing was used solely on the 1937, 1938, and 1939 Packard Twelve, was never used as original equipment on any other passenger car, and its production was discontinued about seven years ago. Because a six-ply tire is necessary for a car of this weight, rare new 7.50 by 16 whitewalls were recently installed as suitable stand-ins.

The car has its original Packard Ivory finish, excellently preserved full red leather upholstery and an original factory radio and speaker. Its total mileage at present is just 38,000.

Albert J. Dunkel of Los Angeles owns it. He has even replaced the rod bearings himself. It is always interesting to ascertain why an enthusiast drives a specific car, so I asked Al point-blank, "Why do you drive a car that gets only eight miles to the gallon in city traffic?" His answer was, "In addition to exceptional comfort and a typically classic Packard appearance, this Packard has a lack of vibration common only to Packard Twelves. It can pull up a grade in high gear that many cars could not climb in second, and it can reaccelerate on such a grade in high after slowing down to a walking pace. Of course a Packard Twelve owner seldom puts his car through these paces, but the very capability of the car testifies to its excellent balance. Driving this car gives me a great feeling of pride. It's my third Packard Twelve. I had been anxious to own a convertible and this has certainly fulfilled my ambition."

With the demise of the Twelve in sight the new Super Eight series was announced in 1938. Produced, as in 1923, with a view to replacing the Twelve, the Super Eight was a luxury car, and most models are true classics. Custom body builders concentrated on the Super Eight, which was built on a 127-inch wheelbase. It was nevertheless stodgy in appearance, and a misinformed public attributed to it the reputation of the smaller 110 and 120 series. The confusion was understandable, for the 1939 and later pre-war models used the body shells of the lower-priced cars. The chassis and interiors, however, maintained the quality standard.

In 1940 the company, in desperation, introduced the first truly streamlined Packard ever built. Known as the Clipper, the car featured fadeaway fenders, which became popular on postwar products. There was nothing spectacular about the mechanical design; the company had wisely concentrated on the car's appearance. It was an immediate success, and Packard stockholders breathed a sigh of relief.

The Land of the Rising Sun then shaped the destiny of the marque. In 1942 automobile production ceased, and the company concentrated on aircraft engines and other war needs. By October 1944 the company

had produced its 50,000th aircraft engine. Government contracts aided the company treasury, and postwar production commenced at the earliest permissible date.

Packard continued after the war with its fade-fender design and raced with other manufacturers to produce a redesigned car at the earliest possible date. The company doesn't talk much about the result, and in fact prefers to forget it. Other manufacturers redesigned bodies and engines, but for some unexplained reason the "new" Packard introduced in 1948 was a hashed-up version of the original Clipper, and so ugly that even the Russians refused to "invent" it. Mechanically the car was sound. It was built with three different engines producing 130, 145, and 160 bhp. It looked like a bathtub within a bathtub. Dealers couldn't sell bathtubs to people looking for cars, and sales dropped to less than two per cent of the industry's total.

At this point a change in company personnel occurred, and a better designed and prettier car appeared in 1951. The '51 model (with slight modifications) is being produced today, but it is the future that has automotive circles buzzing with rumors.

It is well known that the progressive and energetic executives now in office intend to place Packard at the head of the luxury car list or know the reason why. Rumors are flying thick and fast concerning reported merger plans, body designs, and engines. Out of the mass of rumors, these have been definitely established.

1. Packard will attempt to regain the position it once held.

2. It will spend \$18 million for advertising in the next few years.

3. New designs and radical improvements are on their way.

Obstacles facing the company include a lack of confidence on the part of the public, need for a better dealer and service program, need for sufficient money for experimentation, and the lack of a modern, high-powered, compact engine.

Present head man J. J. Nance has started to guide the company in the right direction. Packard is once again building a limousine, an executive sedan, and a formal sedan. Plans call for a coupe de ville body, a town car, and a town car-limousine combination, designed to be driven by chauffeur or owner. A super-duper convertible designed to compete with the likes of the Cadillac El Dorado, the Buick Skylark and the Chrysler K-310 has already been shown to the public. With a well directed advertising campaign, Packard intends to appropriate five to six per cent of total car sales in the immediate future. The goal is a quarter of a million cars a year as compared to the current figure of slightly more than 100,000.

Prospects look favorable for the most remarkable comeback in automotive history. Long standing know-how and ability are combining with the dreams and imagination of a progressive and energetic group of executives and employees. Though competition is strong, the company is flexing its muscles. At Detroit the war chant is, "We did it before, we will do it again."

—Robert J. Gottlieb

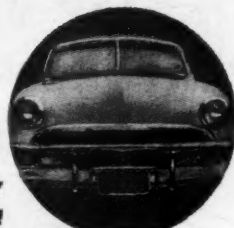


POPULAR CUSTOM GRILLE BARS AT DISCOUNT PRICE!

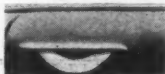
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49-52 FORD—49, 50 MERC.
State Make and Year

**WATCH FOR OUR MONTHLY
DISCOUNT SPECIAL!**



FLARE SKIRTS



\$8.45

Ford	36-53	Ply	35-53
Merc	39-53	Dodge	35-53
Chev	36-53	DeSoto	35-53
Olds	(exc. 98)	Chry	35-53
Pont	35-53	Willys	52-53
Buick	35-41, 50-53	Stude	35-52

Skirts are all steel with concealed rubber liner. The easily installed skirts are primed for paint.



**THIS IS NOT A PHONEY
Genuine Continental Kit**
Ford 49-53.....**\$43.45**
Chev 49-53.....

Kit includes sturdy tire mount, lock mechanism, tire cover, bumper extension, stone deflector, chrome hub cap and misc. hardware.



POWER-TONE Exhaust Header Sets

Ford	37-53	\$37.95
Merc	39-53	

Dodge	53	Line	49-51
Olds	49-53	Stude	51-52
Chev (except conv.)	37-53		
Dodge 6 (except conv.)	42-53		
Ply (except conv.)	42-53		
Ford 6 (except conv.)	52-53		

\$54.95

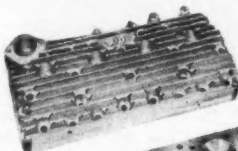
Cadillac	50-51	\$64.95
Lincol	52-53	
Chrys	51-53	

GMC (Header Only) **\$27.95**
Sets include headers, header extension, mufflers, tail pipe, clamps and brackets.

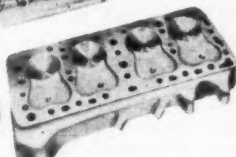


STREAMLINED AIR CLEANER

For all cars now available in mirror bright chrome. Complete and ready for installation. Available in the following sizes: 2 1/2" for Ford, Mercury, Lincoln, and others. Please indicate make and year of car when ordering. Special discount price..... **\$24.45**



**38⁷⁵
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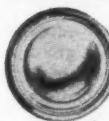
'32-'53 FORD OR MERC
STATE YEAR AND MAKE
(add \$4 for polishing)

29⁹⁵

FORD and MERCURY POWER HEADS

24 STUD.....	'39-'53
CAST IRON	\$38.75 pr.
ALUMINUM	\$46.50 pr.
(add \$7 for polishing aluminum)	
Specify desired compression ratio—7 1/2:1 or 8 1/2:1. STATE YEAR AND MAKE.	

GENERATOR BRACKETS.....\$4.00



MOON DISC

Triple chrome, heavy gauge metal. DURABLE, finished to a high luster.

Set of 4.....**\$14.95**
(15" or 16")

AUTO DISCOUNT CO.
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25% deposit on all orders, F.O.B.
Burbank. Add 3% sales tax in Calif.



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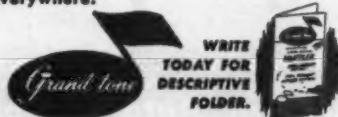


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Seventy-two

Now You Can Keep Cool

(Continued from page 23)

capacity, yet distribute air in a small area without exceeding the boundaries of human comfort. Air delivery is therefore a critical problem in car cooling.

A one-horsepower home window unit, for example, that handles 4480 cubic feet of space with an air delivery of 300 cubic feet per minute, has a ratio of space to air delivery of 11:3. This unit is capable of 0.76 tons of refrigeration, or the capacity to melt the equivalent of 1520 pounds of ice per day. A railroad coach, by comparison, requires 7.5 tons of refrigeration for its 5025 cubic feet of space. With an air delivery of 2400 cubic feet per minute, this gives a 2:1 ratio of space to air delivery.

The typical automobile air conditioner produces about 1.25 tons and cools 160 cubic feet of space. Its air delivery of 300 cubic feet per minute is the same as the house cooler, but results in a 0.53:1 space to air ratio. This small ratio of total space to volume of air delivery makes it difficult to distribute the air and keep within the 25 feet per minute velocity that is comfortable for human beings.

Fresh air within the refrigerated car is important. Again pointing out other installations, we find that a 3400-cubic foot room with six occupants provides 567 cubic feet of space per person. A 5000-cubic foot railroad coach with 56 passengers provides 89 cubic feet per person. The 160 cubic feet of space for which the typical car cooler is designed allows only 32 cubic feet of space for five people. This shows clearly the need for fresh air along with an air conditioning system. With people smoking in the car, the recirculated air, while cool, would become stuffy and soon unbearable without fresh air. Incoming fresh air is also necessary to create a slight pressure within the car to keep engine heat, outside warm air and dust from coming into the car through body leaks. Common air-intake installations are scoops on the side of the car which pick up fresh air and bring it into the cooling unit to be mixed with the recirculated air from the car. Or, as in the Lincoln, the vent windows can do this job.

Removing moisture from the car, another function of the evaporator, presented the problem (now under control) of the unit icing up. To get as much heat absorbing capacity in as small a space as possible, air conditioning evaporators are built with very closely spaced fins. Excess moisture collected by the evaporator runs off these fins into a drain pan, and then to the road beneath the car. An unbalanced condition between the compressor and the condenser can result in low temperatures on the surfaces of the evaporator. This surface temperature must be kept at about 35° F or higher, as water freezes at 32° F. Any drop below this temperature will quickly ice up the space between the fins, making the evaporator completely ineffective. Because of features governing compressor speed to keep the refrigerant capacity stable, this condition has not become serious.

Even with the desirable 25 feet per min-

ute air velocity, the problem of direct drafts and uncomfortable cool breezes is of direct concern to the passenger of an air conditioned car.

A number of air distribution systems have been in use, and probably many more will be devised before air conditioning is completely de-bugged. Two methods are employed by Frigidaire cooling systems. One has the cooled air coming in from ducts located in the corners of the package shelf in the rear of the car. With this type of distribution, the air flow from these openings is directed along the top of the car interior toward the front. Another method, as used on the Oldsmobile, utilizes ducts along each side of the car above the windows. Adjustable outlets in the air passages allow some of the air flow to be controlled by the occupants, to suit their own comfort.

Radiant heat from the sun has been lessened with the introduction of tinted glass, but passengers on the shaded side of a car may be uncomfortable with low temperatures that feel just right to passengers on the sunny side. This problem has been overcome automatically in railroad car construction, but in present automobile systems, manual control of outlets near the passengers alleviates unbalanced cooling.

Another problem of air conditioning, condensation forming on the windows, can only be corrected by proper design of air flow direction. Cold air from the distribution system must be kept from hitting interior glass surfaces.

With interior temperatures from 100° to 115° (a car can easily reach these and higher temperatures sitting in the sun on a hot day), it takes from four to six blocks of driving to reach comfortable temperatures with present cooling systems.

It is estimated that on an 85° day, an air conditioned car with an interior temperature of 75° will feel from three to five degrees cooler than a super-ventilated car. Even on a 95° day, the air conditioned car at 80° would feel up to nine degrees cooler than the well-vented, breezy car.

Control of an air conditioning system presents not a problem, but an evil common to accessories: more knobs and switches for the driver to operate. With car cooling, however, controls can be kept at a minimum. A simple on-off switch, incorporated with blower speed and temperature control, is all that is necessary. Valves for shutting off the system in winter and for setting a minimum temperature can be placed in the trunk.

Car cooling is a comparatively new field, and in its present state has been compared to the car heater of 20 years ago, in that its price is high, and its stage of development is relatively immature. A leading car manufacturer (Packard) offered it as early as 1939, but World War II put a damper on further development. Now that production is up, and a fairly steady pace has been set for body design, the manufacturer is ready to cope with the whims and fancies of the car-buying public. But before the ice-box on wheels becomes a popular accessory, it must

Motor Trend

be improved till it is nearly foolproof.

It is generally conceded that the mechanical vapor compressor is the type most likely to be used in future cooling systems, but to survive, it must be lighter and more compact. Added power accessories and lower hood design will call for a smaller unit, and precision suspension that may be found on cars of the future will not tolerate the weight of a large compressor.

An object like the condenser cannot be placed in front of the radiator without hampering engine cooling. More efficient evaporator operation should be a must for future design. Air distribution (even having it circulated through the upholstery has been suggested) will find new freedom as body design and new upholstery materials allow for air conditioning.

A self-contained unit is the ultimate in refrigeration design. It will eliminate leakage and line stoppage in the yards of tubing found in present installations. Mechanics will rejoice at the absence of the compressor under the hood, and your engine will breathe a sigh of relief when the condenser disappears from the front of the radiator. A possible location for the condenser is the area above the firewall and forward of the instrument panel.

Car owners may readily accept air conditioned cars, but will it pay the manufacturer to produce them? You might think the Great Southwest will be the only market for air conditioning, but that area only scratches the surface. Foreign countries with year-round heat will welcome the air conditioned car. It's no secret that a top market for residential cooling systems is in the New York City area. The car cooler, by that guide, can probably find equal prosperity there.

Naturally areas where the temperature ranges above 100° F will provide a firm foothold for the air conditioned car, but the refrigerated automobile should appeal to people throughout this country for many reasons. Being cool, and not subject to wind from open windows, you'll stay neat, well-groomed and less fatigued. Air conditioning will reduce wind noise, shut out insects, dust, pollen, and rain, and you'll use your car under conditions that once would have kept you at home.

This is an air conditioned era. We enjoy our homes and offices more because they're air conditioned. Other modes of transportation are air conditioned. Why not our cars?

With a demand in volume, mass production will result in substantially lower cost to the buyer. High cost is all that is keeping many people from having air conditioned cars, for as with other innovations, the extent of development is of little concern to many people seeking comfort and luxury in their cars.

The automotive and refrigeration industries believe that in five to 10 years from now, one out of 10 cars will be equipped with air conditioning. Like the automatic transmission, it will pass through stages of growing pains; and like other accessories that mean luxury and comfort to the car owner, it will be tried and accepted, and eventually it will become a nearly standard addition to many of our cars. —Jim Lodge

September 1953



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Gas Turbines

(Continued from page 19)

What Are the Difficulties?

In many ways it is right that America should forge ahead with the turbocar. Initially expensive, high-performance cars, the first commercial models will be best suited to the roads of the U.S. As the average American car develops 150 bhp or more, compared to a 50-bhp average in Europe, this far larger output will suit the turbine, small versions of which are even more wasteful of fuel.

This leads us to the question of fuel consumption and costs. At the moment the turbocar is greedy, and although it runs on low-priced kerosene, the widespread use of this fuel would soon cause readjustments of tax in all countries, with obvious results.

Fuel consumption equivalent to, or better than, that of the internal combustion engine depends on three factors: the efficiency of the components of the turbine engine, the weight of the car, and the efficiency of a suitable, cheap, trouble-free heat exchanger. Engine efficiency will come only as a result of a long period of development, with new types of parts being substituted for old ones, and new methods of construction being used. The extreme high efficiency of the present piston engine, in which 200 bhp is produced from a displacement of sometimes less than 91 cubic inches, is the result of the engineering experience of almost 100 years.

The weight of a gas turbine engine is

already lower than that of a piston engine of equivalent power. It would be reduced even more if the component efficiency already mentioned could be raised to the standard achieved by aircraft gas turbines. It has been calculated that a saving of about three mpg per 100 pounds could be expected, so it can be seen that a reduction in weight is a target well worth attaining.

Lowering the cost of the turbocar, to make it a commercial proposition for everybody, is principally a matter of the development of suitable mass-production methods. Eventually this should be feasible for every component, but the greatest difficulty to be overcome will be the mass production of precision turbine blades—the most expensive parts of the engine. So far, no simple process has been evolved for their cheap large-scale supply. By the time fuel consumption problems are solved, however, the blade problem will doubtless be solved. At the present time it appears that fuel consumption is the yardstick by which progress can be measured.

Heat exchangers have already been mentioned as a means of reducing fuel consumption. If some of the great heat wasted through the exhaust of the gas turbine could be transferred to the air entering the combustion chamber via the compressor, less fuel would be required to raise the temperature of the air to that of the turbine inlet. A great deal of fuel, comparatively speaking, has to be burned to attain this temperature.

Unfortunately, this apparently simple problem is full of difficulties; the answer lies in being able to combine durability

Latest on the Mexican Road Race



IT WAS ANNOUNCED in the July issue of MOTOR TREND that the Fourth Mexican Pan-American Road Race has been officially approved by the government. Entries will be open at the time we go to press and will close October 15, 1953. Entry blanks can be obtained from Martin Moreno, Calzada Cuauhtemac 607, Mexico D.F. 12, Mexico.

With four categories, there should be more interest than ever before, both because of there being more entries and more variety of cars. We have it on good authority that Porsche is sponsoring a group of about 20 European drivers to enter the Under 97.7 Cubic Inch Sport Class. It is almost a surety that John Fitch will drive one of the three Cunninghams. Other probabilities include factory teams from Ferrari, Alfa Romeo, Lancia and Gordi, with the latter having a car in each class. Jaguar entries are still a question mark. Basically the four categories are as follows:

I. "Sport International." Limit 50 entrants, \$578 entry fee. Open or closed car, two seats, lights, fenders, otherwise unlimited.

II. "International Turismo." Limit 100 entrants, \$578 entry fee. Closed, five-passenger stock car, 1930 through 1953. Minimum production 5,000 units annually of the particular model. Interior minimum at window height 82.68 inches long, 53.16 inches wide. Strictly stock. In both stock classes, only hardtop cars eligible. Brake and suspension may be modified. No engine modifications. Factory options that are allowed will be listed categorically by car brand in a supplement to the rules.

III. "Sport Under 1600 cc. (97.7 cubic inches)." Limit 50 entrants, \$347 entry fee. Below 1600 cc (97.7 cubic inches) without supercharger or below 800 cc (48.8 cubic inches) with supercharger. 1930 through 1953 models. Two seats, lights, fenders, otherwise unlimited.

IV. "Turismo Special." Limit 50 entrants, \$347 entry fee. Same rules as "International Turismo." Only cars eligible: Chevrolet, DeSoto Six, Dodge Six and Eight, Ford Six and Eight, Henry J Four and Six, Hudson Jet and Wasp, Nash Rambler sedan and Statesman, Plymouth, Pontiac Six, Studebaker Champion, Willys Aero.

with lightness and a simple design that will not cause heat loss in the exchanger itself.

Experiments have shown that a good heat exchanging system may cut fuel consumption by as much as one-third to one-half over the power range of a gas turbine.

An inherent disadvantage of this new kind of engine is the lack of engine braking, or stopping by means of compression. The Rover turbocar, which relied almost entirely on its conventional brakes, has been fitted with the latest disc type previously confined to use on racing machines. This problem could, perhaps, be solved by connecting the power and compressor turbine shafts together with a suitable clutch and gearing.

It has already been mentioned that the Rover turbocar has no gearbox and that the gas turbine engine performs quite well without one. In actual practice it will probably be advisable to equip the car with a low gear for use in an emergency. Moreover, the provision of a lower gear would make possible higher speed from the normal range.

A popular belief about the exhaust of the turbocar has some basis in truth. Although there is no powerful jet of searing heat, the quantity of fumes is greater than that of a gasoline engine, plus the fact that it is hotter and equally poisonous. The answer, as in the Rover car, has proved to be upward rear exhausts, which, for technical reasons, means rear-mounted engines.

This distribution of weight causes other problems of steering and suspension. A good-steering car must understeer; and understeer requires a greater slip angle on the front wheels than the rear, which can be produced only by greater weight at the front.

What Are the Advantages?

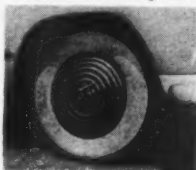
Having discussed some of the difficulties that will have to be solved before the turbocar can go into large-scale production, we must not forget the advantages the car will have. It will be easy to drive, with very little or no gear changing. There will be no vibration of the kind produced by the action of the piston engine, and practically no noise. It will use low-grade fuels such as kerosene, which will lessen the risk of accidental fire. A most important aspect of the turbine will be its longer life between overhauls and the small amount of maintenance necessary. The two major overhaul jobs will be the replacement of the compressor unit, and the replacement or reconditioning of the heat exchanger (equivalent to removing carbon from a piston engine). Satisfactory turbine bearings are a problem in view of the very high rate of revolutions of the turbine itself, but this will have been solved by the time large-scale production is reached. The turbocar should ruin its bearings no more often, probably less, than the car of today.

There is no doubt at all that the turbocar is the car of the future, possibly the near future, in higher price and higher performance brackets. But—there must be a long period of intensive and expensive development, chiefly in production methods, before we will be able to visit our local showroom, select a new turbocar, and take it home to entice the admiration of our family and the envy of the neighbors. —Maxwell Boyd

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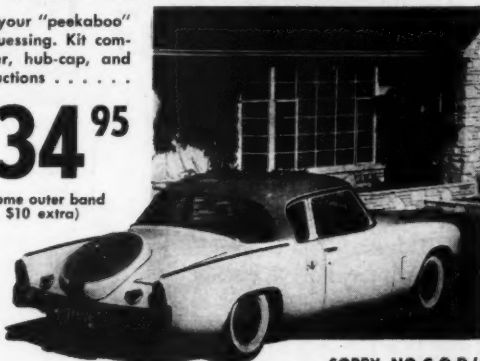
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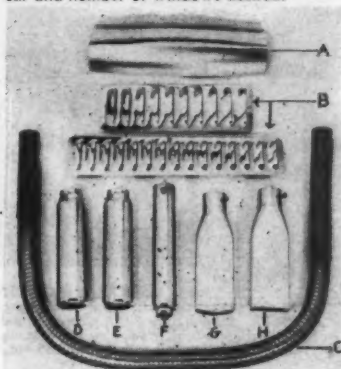
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Pack 'em yourself

*If you can change a flat tire you should
be able to pack your own wheel bearings*

A Photo Story by Tommy Amer

PACKING FRONT WHEEL bearings is easy, and if you follow the average recommendation of repacking at 5000 miles, it's a job that will take you only about 30 minutes each six months. No special tools are needed, and in most cases, the tools required are probably in your trunk right now; they are: hammer, pliers, and an adjustable wrench (with an opening up to 1 1/2 inches). Materials are limited to solvent, grease and (to be on the safe side) new 1/8- x 1 1/2-inch cotter pins.

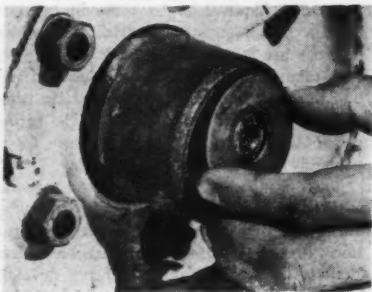
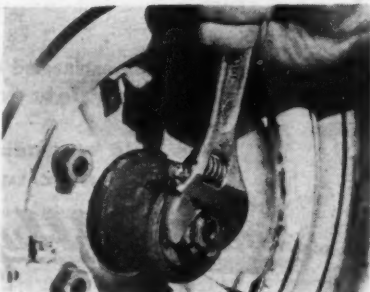
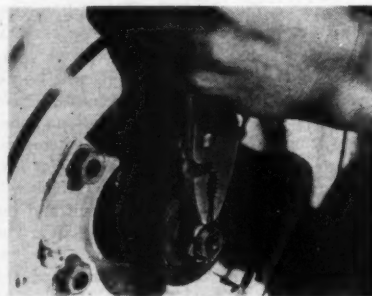
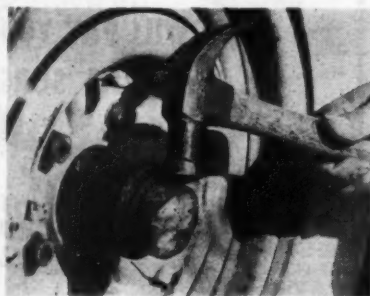
Removing the bearings is a simple procedure, but be very careful to lay the parts out in the order in which they were removed, for they must be replaced in a sequence directly opposite to that in which they were taken from the wheel. When the bearings and parts are removed, they should rest on a clean surface or rag before and after cleaning; the most important thing to remember when packing bearings is to keep all the parts free of sand and dirt. Do not spin the bearings while cleaning them with the solvent.

After all the parts have been cleaned and dried thoroughly, apply a No. 3 consistency wheel bearing grease (for average climates and driving conditions) having a sodium or sodium-and-calcium base; a one-pound can of grease costs about

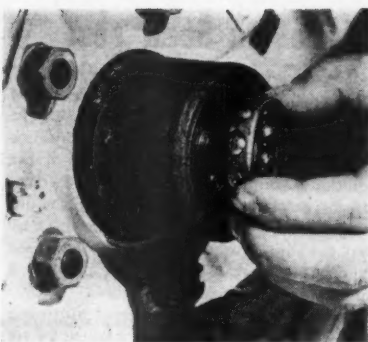
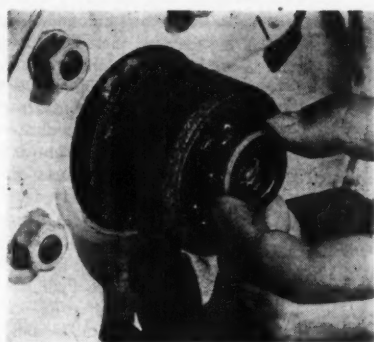
30 cents, and should be sufficient to pack the bearings a dozen or more times. Do not apply too much grease, for an overage may result in leakage into the brakes.

While the wheel is off, use an air hose or the blowing end of a vacuum cleaner to blow the dust off the brake drum and backing plate. Use solvent to clean the grease from the backing plate and wheel spindle; do not get solvent or grease on the brake lining. Before replacing the wheel, put a light film of grease on the wheel spindle and hub.

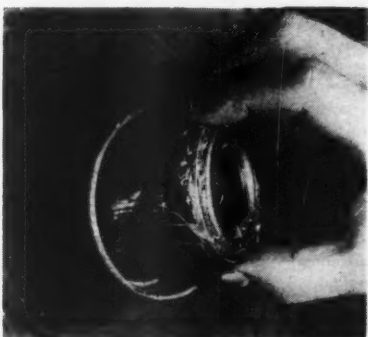
The photographs show the two types of front wheel bearings used on American cars; either type should be inspected carefully for signs of spalling or pitting before being replaced in the wheels. Bearing surface discoloration is no cause for replacement of the bearings; it is only a surface color, and is in no way detrimental to bearing life or service. When re-assembling the bearings, tighten the adjusting nut to insure that all parts are seated correctly and the threads are free; then back off the nut and retighten to between 45-55 inch-pounds (equivalent to about a five-pound pull on a 10-inch wrench), or back off the nut one or two cotter pin holes. Insert the cotter pin and bend out.



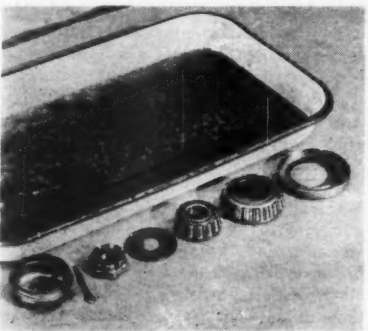
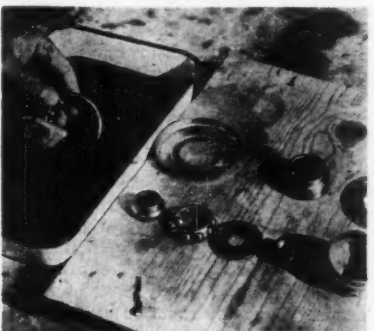
After the wheel is off the ground, use a hammer to tap off the dust cap; this exposes the nut holding the bearings in place. Remove the cotter pin, then the tightening nut; next, remove the large washer. Follow this procedure on any type of wheel bearing



On ball bearing units, outer and inner cones must be removed before taking out the bearings. A delicate touch is unnecessary, for the ball bearings will not roll free



There are no cones to remove from a roller bearing unit. For either type, a tap on the grease seal inside the hub will free the inner bearings, shown removed at right



All parts should be cleaned in a solvent, then air-dried thoroughly. Do not spin the bearings at any time. The solvent pan and drying area should be free of sand and dirt



Work grease into all spaces between the bearings and separator assemblies, using only the amount specified. Assemble in a reverse order from which the parts were removed

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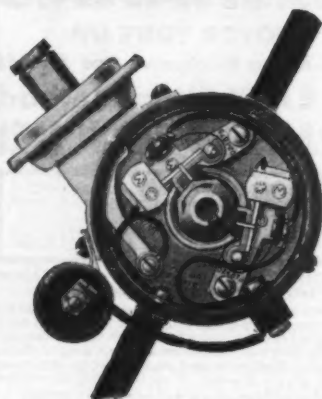
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DeSoto Road Test

(Continued from page 29)

cause of the torque converter, acceleration from a standing start is quite good, but the shift from third to fourth gear takes some time and rather defeats the purpose of the additional torque at low speeds. The transmission on the test car was quiet and smooth in operation, and at times we were unaware that the shift from third to fourth had been made. This type of transmission provides a smooth getaway from standstill.

Does the DeSoto have good stopping power? The DeSoto's overall braking power is no better than the average of the cars tested this year; however, the brakes are outstanding in their ease of application. Although pedal travel is slightly longer than in many cars equipped with power brakes, brake action is quick, and no fade was encountered during the tests. We brought the DeSoto to a skidding stop in 196 feet at 60 mph, a little better than average for a two-ton car. The brake pedal is not in the best position to take full advantage of the easy-to-apply power brakes; it should be lower to the floor, where you could pivot your foot from the accelerator without lifting your heel.

Is the interior up to the standard of other cars of this class? The DeSoto's interior can be considered outstanding in some ways, average in others, but it is not below average in any respect. This is one of the few interiors that enables a passenger to wear a hat without sitting in a crouch. The chair-height seats are comfortable, and because they fit the contour of the body, they allow extended, untiring travel. Shoulder room is good, and legroom is as satisfactory as in any car of this class. Door armrests are positioned for comfort, and are soft. They are too far back on the doors to be particularly handy as door-pulls. The seats are well-padded with foam-rubber; the seatbacks have no covering between the springs and the upholstery.

The DeSoto's interior is conservatively attractive. No out-of-the-ordinary materials are used, and the soft colors blend nicely to harmonize with the car's exterior. Pleated vinyl plastic is used to trim the upper portions of the door panels. Window sills and the facing edge of the dashboard are finished in wood-grained metal.

How safe is the DeSoto's interior? The DeSoto has an excellent safety feature—a plastic-topped dashboard. Although the leather-like plastic covering is used only at the very top of the panel (at the forward edge, near the windshield), it does eliminate glare. Because of its beaded edge, the plastic strip can also be used as a tray and we found it handy for cigarettes, etc.

The face of the DeSoto's dashboard should be made safer for front seat passengers. The right side of the panel contains a protruding glove compartment pushbutton lock, the clock, and a horizontal chrome ridge knee-high on the panel. The radio, with its control knobs and pushbuttons, is directly in front of the passenger in the middle of the front seat. The heat and vent controls are suspended from the dashboard, below the radio, close to the passenger's knees. Some glare is

reflected from the steering wheel hub and the gearshift lever during the day; there is no reflection in the windshield from the instrument lights at night because of the hoods over the instruments. The glove compartment is at the far right side of the dashboard. It is quite small, and its height is restricted to about three inches because of the defroster duct above its forward edge.

Are the DeSoto's instruments and controls marked clearly and positioned properly? The speedometer is in a large, hooded nacelle, with the gauges mounted in a similar manner on either side. White indicators on a black background provide suitable contrast for good readability, but the gauges are rather small, and may be hard to read until you become accustomed to them. A separate rheostat adjusts instrument lighting. A dimmer control is also incorporated into the radio panel to control the radio dial lights at night. The gearshift quadrant, also illuminated, is mounted conventionally on the steering column. The DeSoto's emergency brake (the T-handled, pull-to-set, twist-to-release type) is convenient at the left side of the steering column.

Does the car's design provide maximum visibility for the driver? All-around vision is entirely satisfactory. The DeSoto's new body has reduced blindspots to a minimum. The corner posts are slimmer than those on last year's car, and the '53 model has a new one-piece windshield to add to visibility. The right front fender is not visible from the driver's seat, but forward vision is good because of the high seats. There are no blind spots to the rear, and the rear view mirror does not restrict the driver's view through the center of the windshield. The DeSoto's electric windshield wipers have a good sweep and operate more smoothly than the vacuum type. They leave an uncleared area at the center of the windshield, a fault common to all U.S. cars.

Does the DeSoto have a large trunk? Yes, it held all the Research crew's test equipment, and is large enough to hold a great deal of baggage, if it is packed correctly. The spare tire is nearly vertical on the right side; there is enough space to the right of the tire to carry fairly small or narrow articles. The entire trunk floor is covered with jute-like, water-repellent fabric, but the trunk sides are not covered. Placing the gas filler cap at the center of the car has resulted in a rather high rear sill, which lessens loading and unloading ease. The deck lid, opened by a key-operated pushbutton, is well braced, and its overcenter springs make the lid easy to open.

Is the Firedome engine as hard to service as some of the new V-8's? The DeSoto's engine compartment is not overcrowded; the V-8 has excellent accessibility for service or repair. The overhead valves are in an excellent location for service, and the generator, fuel pump, oil filler neck, and dipstick are all in a position to be serviced easily or removed without trouble. The spark plugs are in a deep well, under the secondary valve cover. Plug removal may be a little more time-consuming than usual, but withdrawing the wells from under the head covers to get at the plugs is a simple process.

The DeSoto's power steering unit, on the generator, is in a good spot for easy servicing. The hood, held wide-open by overcenter springs, opens with a lever located in the center grille opening. Front and rear channels support it well, and side braces run from the sides to the rear. There is no sound-deadening mat or undercoating on the hood.

Is it a well-built car? Body workmanship on the test car was quite good. All normal gaps were even, and body panels were faired smoothly. There were no ripples in the body or top, and no blemishes were seen in the paint.

The gauge and quality of the DeSoto's grille pieces and bumper are about average, and the bumper guards are sturdier than on some cars. Fenders are about average in quality and thickness. The upper parts of the rear fenders are integral with the rear-quarter body section. The lower portions, which are more susceptible to damage, are bolted on, which should cut repair costs.

The doors, opened with pull-type handles (last year's door handles were twist-type), fit snugly and are very easy to open. The doors open to about 70 degrees in front and 60 degrees in rear; they are high and wide and allow plenty of freedom for getting in or out of the car. Door stops are provided at a full-open position. No weld or file marks were seen in the door jambs.

Will it be a durable car? If the MT test car was a sample of average construction, the DeSoto should give many miles of trouble-free operation. There were no rattles from body panels or trim during the road test, and the engine and running gear operated smoothly. The interior showed no wear whatsoever.

Is the DeSoto a good buy? If you're an average car owner, you will probably like the DeSoto. It's a very pleasant car to drive; it has a spacious interior, with plenty of headroom, and as much comfort as you'll find in any car of its class. It is near the top for carrying passengers comfortably for long distances at any speed; its engine, claimed by many to be one of the best, has more than adequate power, yet it's docile enough to give smooth, quiet operation. The car has but one major drawback: fairly low gas mileage. However, we feel the DeSoto is a car designed to carry a heavy load and still retain reasonably high performance; under those circumstances, it should not be expected to give top economy. We said last year that there are many more of yesterday's ideas in the DeSoto body than there are of tomorrow's; DeSoto is slowly breaking its ties with the past. However, the current DeSoto has a great deal of usable space.

The transmission keeps the advanced-design V-8 engine from doing its best. When the new transmission (currently being introduced on Chrysler Crown Imperials, Custom Imperials and New Yorkers) finds its way down to the DeSoto line, it will alleviate this condition. Nonetheless, the car's performance is quite satisfactory. The DeSoto has few undesirable features—fewer than many cars. It's an absence of faults, rather than the presence of outstanding features, that makes the DeSoto one of the finest cars in its class.

(For The Story in Figures, see next page)

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HOW AN IDEA GROWS

Detrich's wonder wagon; Feed-everybody's dream car; Dreaming—Chrysler style; GM's Proving Ground for ideas; Free-wheelers; Packaged—marque of prestige; Stude's style-acter; World on wheels

THE AUTO AS ART

The motor show, in the museum; Beauty on parade

Contents

VIP VEHICLES

Who rides here? Heavy film fare; Designed for glamour; They pilot show-boats; King-size cars

THE DREAM MAKERS

Royal rides; They pit wheels on drums; The vanishing American; Just what you want; The license cars in the world; Vire la France; Power before beauty; Swisswork wagons; Italian renaissance—on the road; Mexico rolls her own

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Fly-mobile; Why four wheels? (88 miles to the gallon; Pour me a car; More power to you; The lead jet; Diesel-electric "de ville"; Full speed ahead

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The car for the occasion; Dream street beat; Wish wagons; Nightmare square

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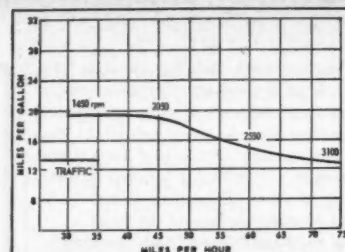
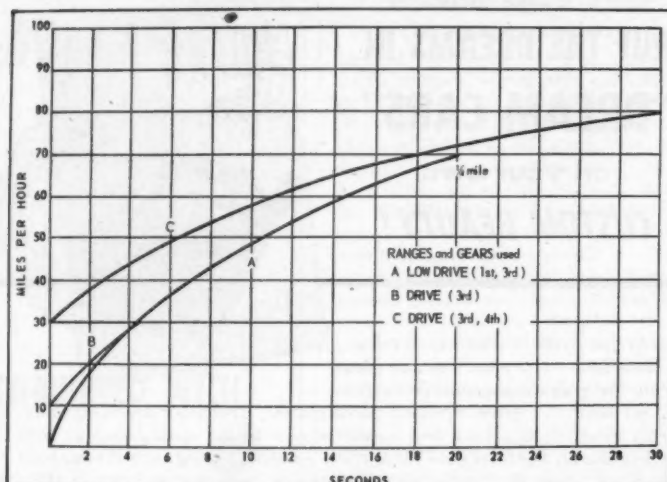
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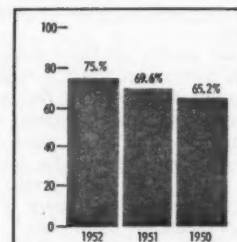
1953 DE SOTO FIREDOME V8

(Equipped with Tip-Toe Shift and Fluid-Torque Drive)

THE STORY IN FIGURES



FUEL CONSUMPTION



PERFORMANCE

CHASSIS DYNAMOMETER TEST

(Checked on Clayton Mfg. Co.'s chassis dynamometer; all tests are made under full load, which is similar to climbing a hill at full throttle)

RPM	MPH	ROAD HP
1550	18	43
2010	38	60
2500	53	74
3200	70	86 (maximum)

ACCELERATION

(In seconds; checked with fifth wheel and electric speedometer)

Standing start 1/4-mile (69 mph; LOW and DRIVE range)	19.7
0-30 mph (34, car speedometer; LOW and DRIVE range)	4.6
0-60 mph (70, car speedometer; LOW and DRIVE range)	15.5
10-20 mph (DRIVE range)	1.9
20-30 mph (DRIVE range)	2.6
30-40 mph (DRIVE range)	2.8
40-50 mph (DRIVE range)	3.4
50-60 mph (DRIVE range)	4.6
60-70 mph (DRIVE range)	7.2
70-80 mph (DRIVE range)	13.6

TOP SPEED

(In miles per hour; clocked speeds over surveyed 1/4 mile)

Fastest one-way run	100.33
Slowest one-way run	97.40
Average of four runs	98.37

FUEL CONSUMPTION

(In miles per gallon; checked with fuel flowmeter, fifth wheel, and electric speedometer)

Steady 30 mph	19.5
Steady 45 mph	19.0
Steady 60 mph	14.9
Steady 75 mph	12.5
Simulated traffic over measured course	12.4

BRAKE STOPPING DISTANCE

(To the nearest foot; checked with electrically actuated detonator)

30 mph	47
45 mph	106
60 mph	196

GENERAL SPECIFICATIONS

ENGINE

Type	Overhead-valve, V-8
Bore & stroke	3.625 x 3.34
Stroke/bore ratio	.922:1
Compression ratio	7.1:1
Displacement	276.1 cu. in.
Advertised bhp	160 @ 4400 rpm
Piston travel	2658 ft. per min.
@ max. bhp	5795
Bhp per cu. in.	250 lbs. ft. @ 2000 rpm
Maximum torque	136.5
Maximum bme	

DRIVE SYSTEM

Standard transmission	Three-speed synchro-mesh using helical gears
Ratios	1st 2.57, 2nd 1.83, 3rd 1.00, reverse 3.48
Automatic transmission	Fluid coupling or torque converter with servo-

operated four-speed transmission	
1st 3.57, 2nd 2.04, 3rd 1.75, 4th 1.00, reverse 3.99	
1st 3.28, 2nd 2.04, 3rd 1.61, 4th 1.00, reverse 3.62; maximum converter ratio at stall 2.34	
Overdrive transmission	Planetary type with manual lockout and accelerator downshift 0.7:1 (overall 2.87)
Conventional, 3.73; automatic, 3.73 with fluid coupling, 3.34 with torque converter; overdrive, 4.10	
Ratios (with fluid coupling)	
(with torque converter)	
Rear axle ratios	

DIMENSIONS

Wheelbase	125.5 in.
Tread	Front 56.31 in., rear 59.623 in.
Wheelbase/tread ratio	2.17:1
Overall width	77.25 in.
Overall length	213.375 in.
Overall height	62.5 in.
Turning diameter	42.1 ft.
Turns lock to lock	3 1/2
Weight (test car)	4120
Weight/bhp ratio	25.7:1
Weight distribution	Front 56.1%, rear 43.9%
Weight/sq. in.	
brake lining	20.4 lbs.
Tire size	7.60 x 15
Tire loading (% of recommended maximum at cu.b. weight)	Front 100%, rear 79%

SAFETY CHECK

DRIVER SAFETY

Blind spot at left windshield post at a minimum?	X
Blind spot at rear vision mirror at a minimum?	X
Vision to right rear satisfactory?	X
Windshield free from objectionable reflections at night?	X
Dash free of annoying reflections?	X
Left side of dash free of low projections?	X
Cigarette lighter, ashtray and glove compartment convenient for driver?	X

DRIVER AND PASSENGER

Front seat apparently locked securely at all adjustment points?	X
Metal strip eliminated between front quarter window and main door window?	X
Rear view mirror free of sharp corners?	X
Right side of dash free of projections?	X
Adequate shock-absorbing crash pad?	X

REAR SEAT PASSENGERS

Back of front seat free of sharp edges and projections?	X
Rear interior door handles inoperative when locked?	X
Adequate partition to keep trunk contents out of passenger compartment on impact?	X

PRICES

(Including retail price at main factory, federal tax, and delivery and handling charges, but not freight.)

Four-door sedan	\$2663.00	\$2375.75
Club coupe	2641.50	2354.00
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Hardtop	2912.50	2624.25
Station wagon	3371.00	3097.75
Eight-passenger sedan	3548.75	3271.00

ACCESSORIES

Tip-Toe Shift:	
With Fluid Drive	\$130.10
With Fluid-Torque	236.50
Overdrive	97.55
Power steering	177.35
Power brakes	36.55
Radio	106.00
Heater	85.75
Direction signals	Standard
White sidewall tires (additional cost per set):	
7.60 x 15	30.20

OPERATING COST PER MILE

(In this portion of the test table, MOTOR TREND includes those items that can be figured with reasonable accuracy on a comparative basis. The costs given here are not intended as an absolute guide to the cost of operating a particular make of car, or a particular car within that make. Depreciation is not included.)

Cost of gasoline	\$159.69
Cost of insurance	128.60
Maintenance:	
Wheel alignment	6.00
Brake reline (front only)	13.38
Major tuneup	14.00
(Labor only; includes: clean and adjust or renew points and plugs, adjust spark timing, carburetor, fan belt and generator. Clean air cleaner, battery terminals, bowl and fuel lines, check coil condenser, voltage control, heat control, compression and vacuum, tighten cylinder heads, manifolds and hose connections.)	

Automatic transmission (change lubricant; shares common oil supply with engine, with change recommended every 10,000 miles; regular adjustments not required)

First year operating cost per mile (based on 10,000-mile annual average)

3.3¢

MAINTENANCE AND REPAIR COST ANALYSIS

(These are prices for parts and labor required in various repairs and replacements. Your car may require all of them in a short time, or it may require none. However, a comparison of prices for these sample operations in various makes is often of pertinent interest to prospective owners.)

	PARTS	LABOR
Distributor	\$ 41.15	\$ 4.00
Battery	28.95	1.20
Fuel pump	10.00	2.80
Fan belt	1.80	1.20
Valve grind	6.28	45.20
One front fender	44.95	19.00
Two tires	56.20	
TOTALS	\$189.33	\$73.41

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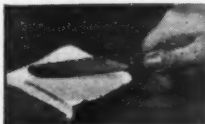
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Kaiser Road Test

(Continued from page 31)

Is the Kaiser an easy car to drive? The Kaiser Manhattan four-door sedan rates about average for overall driving ease. MT's 3550-pound test car (with 7.60 x 15 tires) had a stiff steering system, and the Kaiser was not as easy to maneuver as some cars of this weight and tire size.

A commendable improvement has been made over the "shakiness" of the '52 Kaiser. Following last year's test, we reported that the Kaiser did not provide that degree of precision control which brings cheers from MT Research when it's found. We aren't cheering over the '53 Kaiser's steering system, but we are satisfied with the way the car responds to each movement of the wheel. The constant steering correction required by the '52 Kaiser has vanished.

The hard-turning steering wheel does not make parking a problem, but the car's 211-inch overall length may mean passing up some of those hard-to-find parking places. The car's length adds to its beauty, but detracts from handling ease in tight spaces. The Kaiser has only a 118-inch wheelbase, yet its total length is more than many cars of its class with longer wheelbases.

Steering wheel position is comfortable, but the wheel's position (in relation to the seat) puts it in the way of your leg when you move from the throttle to the brake pedal.

Dual-Range Hydra-Matic adds much to driving ease. Using the left foot to apply the brake (a custom common to many people who drive clutchless cars) is curbed in the Kaiser because the brake pedal is close to the steering column. The driver of the Kaiser has a great deal of leg movement in other directions.

Does the driver have good control of the car? Steering was positive at all times. Even under severe cornering, no mushiness was felt in the steering system. The Kaiser steering wheel requires 5½ turns lock to lock, but the small wheel allows quicker turning than in most cars of this size. Rear-end drift was noticed only on tight turns at speeds of 55 to 60 mph, and controlling the car in cornering was no problem. On washboard roads at speeds up to and over 50 mph, the Kaiser had an uncommon tendency to remain stable, and the rear end stayed in line with the front of the car at all speeds on rough roads.

Does the Kaiser have good roadability characteristics? Body movement coming out of streetcar tracks was slight, and the Kaiser's reaction to ruts and washboard roads left little to be desired. Vibration was not excessive under most conditions, but on bad dips or chuckholes, a great deal of vibration and some shock was transmitted through the steering wheel. Steering wheel vibration is still a fault common to Kaisers; severe wheel shock, a trait of the '51 Kaiser, has been eliminated.

Does the Kaiser have good riding qualities? They are very good. MT's '53 Manhattan sedan gave the Research crew one of the best-controlled rides experienced in this year's tests. There was no bottoming or pitching, and bouncing on normal or bad

dips could not be classed as abnormal. Oscillation was at a bare minimum coming out of all dips, recovery was rapid and smooth.

Sidesway is not noticeable under normal conditions, but with strong crosswinds, there is slight sway. Body lean is not excessive on curves taken at 40 mph, but lean is quite noticeable above that speed. At 55 mph, the Kaiser reached a maximum point of lean.

Are the Kaiser's brakes adequate for a "safety-first" car? They are more than adequate; to be exact, better than any car tested this year. A vast improvement has been made over the '52 model's stopping power, for the overall stopping distance average has been cut from 126 to 109 feet. We noticed an especially impressive difference in stopping power at 60 mph. The '52 Kaiser (slightly lighter than the '53) stopped in 228 feet at 60 mph, and our '53 test car stopped in 188 feet at the same speed. No fade was encountered during the brake checks, and little steering correction was needed to bring the car to a straight-line stop.

How comfortable is the Kaiser's "new look" interior? The Kaiser will rank second to few cars in interior comfort. The seats, padded with foam rubber, are wide, comfortable, and provide good support for the back and legs. The price paid for a low silhouette was headroom, which is quite restricted in the back seat; front seat passengers had satisfactory headroom, but not with a hat; it would be impossible for most men to wear one while sitting in the front.

Front legroom is excellent, and no complaints were heard from rear seat passengers about legroom or toe space. Door armrests are positioned for utmost comfort (although the rough-finish plastic covering may be annoying during bare-arm weather).

Does the heat and vent system provide all-weather comfort? Our Kaiser test car gave plenty of heat, but the manner in which the heat was distributed resulted in the next thing to an old-fashioned hot-foot. The hot air is aimed directly at the accelerator pedal.

The weather during the road test was not extremely hot, but MT's test car was unusually warm, even with the air vents opened wide. While the incoming air did not have the volume of some fresh air systems, it might have been adequate but for one thing: because of the Kaiser's high windshield, rays can enter the car even when the sun is nearly overhead. Heat-reducing tinted glass (\$16 additional) is an aid to comfort.

Does the driver have maximum visibility in the big-windowed Kaiser? Vision is not restricted by any standards, but we feel that the Kaiser, for all its glass area (the greatest, they say, of any four-door sedan), could use its wide, high windows to greater advantage. Although the Kaiser's front corner posts are very thin, the graceful-but-thick arch formed at the top of the posts limits vision. The front seat position allows the driver a good view of the road and a glimpse of the front right fender. The rear seatback rises high above the base of the big back window reducing rear vision slightly.

Can the instruments be read quickly? Are the controls within easy reach?

Instrument readability is good: the large white numerals show up well against their black background. Reaching the controls will be a nuisance to everyone but the driver with extra long arms. The cane-handled parking brake is to the right of the steering column.

Does the long, wide Kaiser have a large trunk? Rather than having a "bustle-back" rear end like many late-model sedans, the Kaiser has a rear deck that repeats the graceful slope of the top. If a trunk is to be practical, perhaps exterior streamlining must give way to necessity. The length and width of the Kaiser are reflected in the trunk, but so is the car's low design. This restricted height meant carrying more than half of MT's test equipment in the passenger compartment.

The Kaiser's spare tire is carried in a well, below the trunk floor. It is neatly out of the way, and provides a great deal of level floor space in the trunk. The one drawback to this is the inconvenience of having to remove baggage to get at the spare when you have to change a tire.

Are body and trim well built and practical in application? The bumpers and grille are of average gauge and quality. The Kaiser grille is one of the simplest in design and construction. Replacement of grille pieces should be inexpensive, for few parts are used. Repairs may run high for rear fenders, which are an integral part of the rear body quarter panel.

All body panels were faired smoothly on our Manhattan test car, and door construction was average, with few weld marks showing in the door jambs. The rear doors open at an angle of about 70° and the front doors open at about 80. The doors are fairly large, but the slope of the car's top requires considerable stooping to get into the back seat. Entrance to the driver's seat is difficult because the wheel is so near the seat, which in turn is close to the floor. Door stops are provided at the full-open position; their action is not too positive.

Will it be a durable car? All the running gear on the MT test car was in excellent condition at the end of the 1350-mile road test. An annoying rattle at idle speed was caused by the exhaust pipe rattling against the frame (inspection showed that the exhaust pipe hangers connecting the pipe to the frame had broken while the car was running on the dynamometer). The right front door handle became inoperative during the test runs and the upper hinge broke on the right rear vent window. It is unfair to base any final opinions on these minor failures, for the Kaiser test car had been used as a demonstrator during its first 8000 miles of operation and subjected to abuse from people trying the car out and "testing" the doors (repeatedly slamming them). These faults are typical of many of the things that frequently go wrong within a car's normal guarantee period.

As we expected, the interior of the Manhattan was in perfect condition at the end of the test. This material is washable, apparently not as prone to damage as cloth would be, and it should retain its color and

(Continued on page 86)



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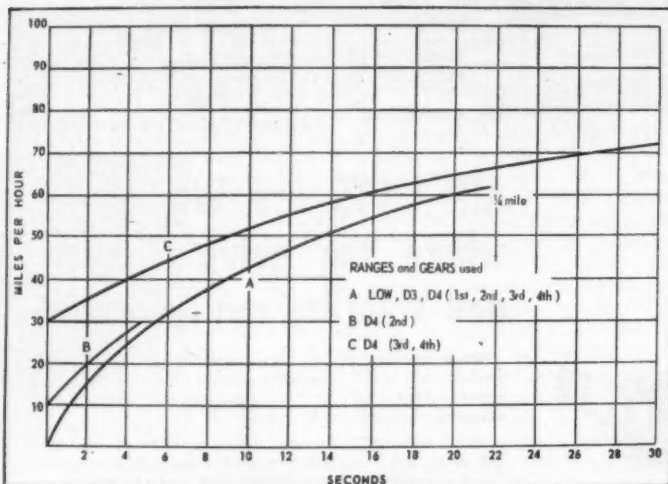


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THE STORY IN FIGURES



ACCELERATION

PERFORMANCE

CHASSIS DYNAMOMETER TEST

(Checked on Clayton Mfg. Co.'s chassis dynamometer; all tests are made under full load, which is similar to climbing a hill at full throttle)

RPM	MPH	ROAD HP
1200	29	27
2000	50	43
2500	65	52
2800	74	58 (maximum)

ACCELERATION

(In seconds; checked with fifth wheel and electric speedometer)

Standing start 1/4-mile (63.7 mph; LOW and D3 range)	21.6
0-30 mph (33, car speedometer; LOW and D3 range)	5.8
0-60 mph (67, car speedometer; LOW and D3 range)	20.4
10-20 mph (DRIVE range)	2.1
20-30 mph (DRIVE range)	2.7
30-40 mph (DRIVE range)	4.1
40-50 mph (DRIVE range)	5.0
50-60 mph (DRIVE range)	6.8
60-70 mph (DRIVE range)	9.9
70-80 mph (DRIVE range)	17.4

TOP SPEED

(In miles per hour; clocked speeds over surveyed 1/4 mile)

Fastest one-way run	93.16
Slowest one-way run	87.97
Average of four runs	89.52

FUEL CONSUMPTION

(In miles per gallon; checked with fuel flowmeter, fifth wheel, and electric speedometer)

	D3	D4
Steady 30 mph	23.7	28.8
Steady 45 mph	19.3	25.0
Steady 60 mph	21.6	21.6
Steady 75 mph	16.8	16.8
Simulated traffic over measured course	16.0	

BRAKE STOPPING DISTANCE

(To the nearest foot; checked with electrically actuated detonator)

30 mph	43
45 mph	97
60 mph	188

GENERAL SPECIFICATIONS

ENGINE

Type	L-head, six cylinder
Bore & stroke	3.3125 x 4.375
Stroke/bore ratio	1.32:1
Compression ratio	7.3:1
Displacement	226.2 cu. in.
Advised bhp	118 @ 3650 rpm
Piston travel	2661 ft. per min.
@ max. bhp	.532
Bhp per cu. in.	200 lbs.-ft. @ 1800 rpm
Maximum torque	133.3 psi

DRIVE SYSTEM

Standard transmission	Three-speed synchro-
-----------------------	----------------------

Automatic transmission

Ratios 1st 2.57, 2nd 1.55, 3rd 1.0, reverse 3.48

Dual-Range Hydra-Matic, fluid coupling with gears

Ratios 1st 3.81, 2nd 2.63, 3rd 1.45, reverse 4.30

Overdrive transmission Planetary type with manual lockout and accelerator downshift

Ratio 0.7:1 (overall 3.18)

Rear axle ratios Conventional, 3.91 standard, 4.09 and 4.27 optional; Hydra-Matic, 3.31 standard, 3.54 optional; overdrive, 4.55 standard

DIMENSIONS

Wheelbase	118.5 in.
Tread	Front 58 in., rear 58.75 in.
Wheelbase/tread ratio	2.03:1
Overall width	74 in.
Overall length	211.125 in.
Overall height	60.25 in.
Turning diameter	36 ft.
Turns lock to lock	5 1/4
Weight (test car)	3530 lbs.
Weight/bhp ratio	30:1
Weight distribution	Front 54.6%, rear 45.4%
Weight/sq. in. brake lining	20.17 lbs.
Tire size	6.70 x 15
Tire loading (% of recommended maximum at curb weight)	Front 100%, rear 83%

SAFETY CHECK

DRIVER SAFETY

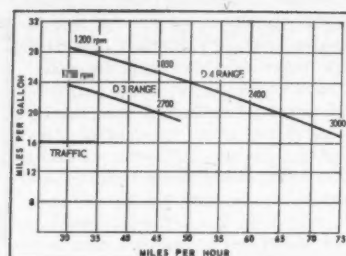
	YES	NO
Blind spot at left windshield post at a minimum?	X	
Blind spot at rear vision mirror at a minimum?	X	
Vision to right rear satisfactory?	X	
Windshield free from objectionable reflections at night?	X	
Dash free of annoying reflections?	X	
Left side of dash free of low projections?	X	
Cigarette lighter, ashtray and glove compartment convenient for driver?	X	

DRIVER AND PASSENGER

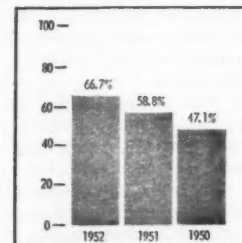
Front seat apparently locked securely at all adjustment points?	X	
Metal strip eliminated between front quarter window and main door window?	X	
Rear view mirror free of sharp corners?	X	
Right side of dash free of projections?	X	
Adequate shock-absorbing crash pad?	X	

REAR SEAT PASSENGERS

Back of front seat free of sharp edges and projections?	X	
Rear interior door handles inoperative when locked?	X	



FUEL CONSUMPTION



DEPRECIATION

Adequate partition to keep trunk contents out of passenger compartment on impact? X

PRICES

(Including retail price at main factory, federal tax, and delivery and handling charges, but not freight)

Four-door sedan	\$2512.79	Manhattan
Two-door sedan	2459.00	Deluxe
Traveler	2618.55	\$2596.76
		\$2755.36

ACCESSORIES

Dual-Range Hydra-Matic	\$211.07
Overdrive	112.34
Power steering	121.95
Radio:	
6 tube	85.00
8 tube	115.00
Heater	79.50
Tinted glass	16.10
Direction signals	Standard
White sidewall tires (additional cost per set):	
6.70 x 15	34.57

OPERATING COST PER MILE

(In this portion of the test table, MOTOR TREND includes those items that can be figured with reasonable accuracy on a comparative basis. The costs given here are not intended as an absolute guide to the cost of operating a particular make of car, or a particular car within that make. Depreciation is not included.)

Cost of gasoline	\$128.20
Cost of insurance	128.60
Maintenance:	
Wheel alignment	6.00
Brake reline (front only)	13.80
Major tuneup	12.40
(Labor only; includes: check compression, clean and adjust or renew points and plugs, set spark timing, clean fuel lines and screens, adjust fan belt, clean and re-oil air cleaner, tighten cylinder head and manifold.)	
Automatic transmission (adjust, change lubricant)	\$12.70
First year operating cost per mile (based on 10,000-mile annual average)	3¢

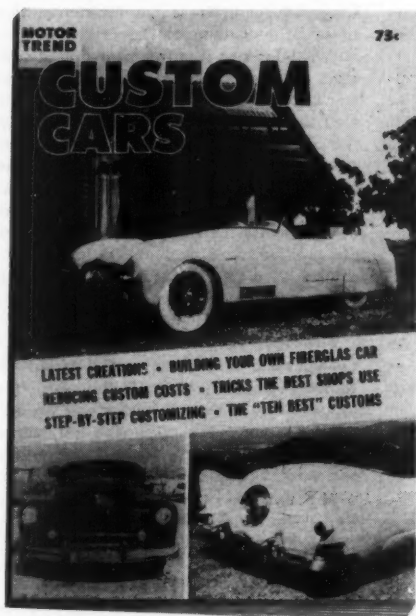
MAINTENANCE AND REPAIR COST ANALYSIS

(These are prices for parts and labor required in various repairs and replacements. Your car may require all of them in a short time, or it may require none. However, a comparison of prices for these sample operations in various makes is often of pertinent interest to prospective owners.)

	PARTS	LABOR
Distributor	\$ 16.46	\$ 1.60
Battery	20.95	.80
Fuel pump	15.00	2.00
Fan belt	2.26	1.60
Valve grind	3.32	28.00
One front fender	40.51	16.50
Two tires	46.42	
TOTALS	\$144.92	\$50.50

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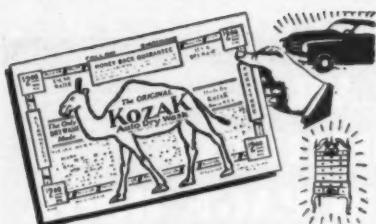
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Eighty-six

(Continued from page 83)

fresh appearance after many years of use. **Would the Kaiser be a good buy?** The Kaiser is one car that must be seen to be appreciated. You can tell if it suits your needs and tastes only after you've seen it and driven it. Its nicely controlled ride makes it a good highway car, and in spite of its flattish trunk and low ceiling, it should be a good family choice. Its price rates it a spot beside some very powerful cars, few of which have the economy associated with the Kaiser. Still a "new" car in terms of production, the Kaiser has yet to hit its stride in new car sales or in resale value on the open market. However, like other independents, the Kaiser will not cause a serious financial loss when

traded in on another car of the same make.

Here, then, is a car that is a real treat in styling ideas. It is comfortable, powered for average driving, and economical. A worthwhile attempt has been made to build one of our safest cars, and if present colors and design ideas are any indication of the future, the Kaiser is starting off on the right foot toward making a very permanent place for itself as a leader in automotive styling. If you're looking around for a new car, stop at your local showroom to look at this car and drive it; but even if you aren't buying a new car, take a good look at a new Kaiser—because if you haven't seen one, you've missed something! (For The Story in Figures, see page 84.)

Studebaker Road Test

(Continued from page 33)

Does it ride quietly? Very little road noise is heard in the Studebaker, regardless of the car's speed or the road surface. Undercoating is not needed as a noise reducer, although the slight engine noise might be dampened by undercoating, or a fiber mat under the hood. Wind noise is high with the side vents open, but when "buttoned up," the car is quiet even at high speeds.

Does the heat and vent system supply all-weather comfort? The Studebaker's cooling "system" consists of two outward-opening vent doors mounted on the sides of the car, forward of the front doors. The incoming air is plentiful in volume, but somewhat warm, because it is scooped in close to the hot road surface. Drafts coming into the car through ill-fitting door moldings were welcome during the desert speed runs, but would be uncomfortable in cold weather. The heater, the only "luxury" accessory on the test car, will supply enough warm air to keep passengers warm in winter weather.

Does the Champion's interior have a "finished," attractive appearance? Neither workmanship nor materials were of the best quality in the '53 Champion sedan. The wool cloth upholstery did not have the quality look of the interiors of some cars in this class. The plastic on the car's door panels will probably be quite durable, but the utilitarian panels did not brighten the already conservative interior. The front compartment floor of the Champion was covered with a rubber mat, and the rear floor was covered with carpet of only fair quality. The rear carpet seemed to have been cut rather hastily, and had no binding around its edges.

The Studebaker's seat adjustment was nearly inoperative. With the help of the front seat passenger, the driver could, with much pulling and pushing, move the seat into a comfortable position. At one time during the test, the seat moved backward easily—but strictly of its own accord, when the driver wasn't trying to adjust it.

Can the interior be labeled "safe?" The Studebaker Champion rates about average on interior safety. The dashboard has few projections on its surface. Lower half of the panel slants away from the passengers, and eliminates knee-level flat surfaces. Although the top of the dashboard is a smooth, painted surface, no glare reflected into the driv-

er's eyes from the top of the panel. There was no reflection in the windshield from instruments during night-time driving. The Champion's ashtray is too far to the right to be of much use to the driver, and the undersized glove compartment, far to the right of the driver, is not within normal reach from the driver's seat.

Can the instruments be read easily? Are the controls handy, and easy to use? Instrument grouping on the Champion's panel is good, and all the gauges can be read with a sweeping glance. The dials are far below the top of the dash panel, but they are well marked and don't have to be studied. The parking brake, a handle type with a push-button release mechanism, is at the right side of the steering column.

The most outstanding feature of the Studebaker's instrument panel (from the standpoint of originality) is the use of toggle switches in place of push-pull switches and turn-type knobs. Although not marked too clearly, they are extremely easy to use, and positioned well for driver use.

The Studebaker no longer has a "green-house-like" top; does this mean that vision has decreased? Not in the least. The '53 Champion sedan has a large one-piece windshield and a wide wrap-around rear window that afford good visibility to the front and rear. The rear quarter panels are wider than in some sedans, but create no blindspots to the rear. The Champion's rear-view mirror did not restrict forward vision, but its usefulness was somewhat curbed by vibration; the images seen in the mirror became "fuzzy" at speeds around 60 mph.

The Champion's cowl is rather high, but the sloping hood allows a full view of the road ahead, as well as a good look at the right front fender. The Studebaker's rear fenders are invisible to the driver, but all-around vision and the car's size are such that moving the car around in tight quarters requires no guesswork by the driver. The Champion's electric windshield wipers operate smoothly, and wipe at a good speed, but their sweep is not sufficient to eliminate the blindspot in the center of the windshield during a heavy rain or snow storm.

How good are the Champion's brakes? Before tightening the Studebaker's brakes for our brake checks, we had driven the Champion under all conditions with the brakes set as they were for the Mobilgas Economy Run. The friction-free brakes were quite

Motor Trend

effective under normal driving conditions, and the unusually lengthy pedal travel caused nothing more than a wary feeling on the part of the driver, for the braking action was entirely satisfactory. Under extreme operating conditions (such as repeated panic stops) with the brakes tightened, a great deal of pedal pressure was required for maximum stopping power.

The Champion's overall braking power is above average; at speeds of 30, 45, and 60 mph, the test car's average stopping distance was 112 feet. Averages for other cars in the Champion's class range from 109 to 118 feet; the 1952 average for all cars was 120 feet.

How well are economy and performance combined in the Champion? According to the figures collected on the road test, the economy-and-performance merger was completed with only a slight loss of performance. The Champion's low-speed acceleration figures are surprisingly good. Its time of 21.7 seconds for the standing-start quarter-mile is a slight half-second slower than the average of its class; the Champion maintained average acceleration times well into the upper-middle speed ranges. Acceleration times rose rapidly at high speeds, because a shift was made from third gear into the higher-g geared overdrive at about 70 mph, and because of the low torque produced by the Champion's L-head six. This output (138 lbs.-ft. @ 2400 rpm) is well below the average of the low-price class; however, even though the Champion's time of 29.4 seconds from 30-70 mph is the highest of its class, it is interesting to note that other cars in this class have recorded times as high as 27.2 and 28.5 seconds on the 30-70 tests.

Some of our pre-test speculation centered around the Champion's average top speed. We won't reveal what our guesses were, but we will admit that we were somewhat surprised by its action on the quarter-mile trap. The Champion's average top speed was 85.59 mph—entirely satisfactory for normal (and above-normal) driving conditions. Some cars in the low-price class boast of speeds in excess of 90 mph; others are below the Studebaker in average top speed—which points out that, again, the Studebaker Champion holds a steady average in its class. Maximum acceleration was attained by a standard 1-2-3 shift, rather than by using first, second, and overdrive second, which has proven faster in some cars. Clutch slippage (noticeable to the extent that the engine raced with the clutch fully engaged) during our acceleration checks gave us the impression that the Champion's clutch should be larger.

The Champion's engine is one of the smallest in its class; is it easy to work on and service? When Ray Brown, MT's authority on engine accessibility, filled out the engine accessibility check-sheet, he added a note under "Additional Comments"; it read "one of the nicest setups I've seen yet." Because of the small size of the Champion's six-cylinder engine (169.6 cubic inches) and the simple chassis construction around it, accessibility of engine components rated "good" to "excellent" on many counts. The head can be removed with a minimum of effort; and plugs, distributor, generator and

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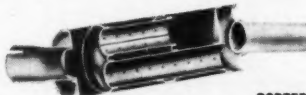
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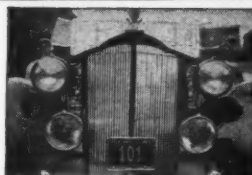
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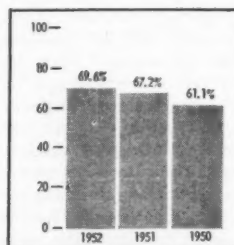
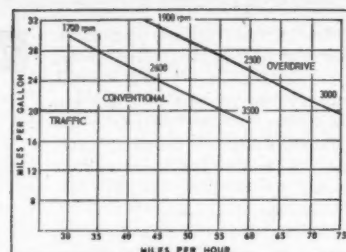
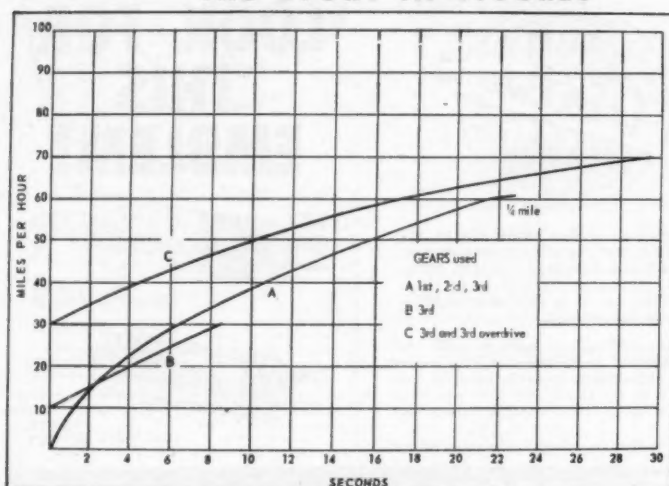
ON YOUR NEWSSTAND SEPT. 16TH

PACIFIC SOUTHWEST REGIONAL CHAMPIONSHIP DRAGS full photo story

1953 STUDEBAKER CHAMPION

(Equipped with Overdrive)

THE STORY IN FIGURES



PERFORMANCE

CHASSIS DYNAMOMETER TEST

(Checked on Clayton Mfg. Co.'s chassis dynamometer; all tests are made under full load, which is similar to climbing a hill at full throttle)

RPM	MPH	ROAD HP
1200	21	25
2000	35	38
2300	44	43
3500	60	50 (maximum)

ACCELERATION

(In seconds; checked with fifth wheel and electric speedometer)

Standing start 1/4-mile	22.7
(60.4 mph; 1st, 2nd, 3rd gear)	
0-30 mph (33, car speedometer; 1st, 2nd gear)	6.3
0-60 mph (68, car speedometer; 1st, 2nd, 3rd gear)	21.7
10-20 mph (3rd)	4.2
20-30 mph (3rd)	4.4
30-40 mph (3rd)	4.8
40-50 mph (3rd)	5.2
50-60 mph (3rd)	7.0
60-70 mph (3rd overdrive)	12.4
70-80 mph (3rd overdrive)	24.3

TOP SPEED

(In miles per hour; clocked speeds over surveyed 1/4 mile)

Fastest one-way run	86.20
Slowest one-way run	84.50
Average of four runs	85.59

FUEL CONSUMPTION

(In miles per gallon; checked with fuel flowmeter, fifth wheel, and electric speedometer)

	O.D.	Conv.
Steady 30 mph	36.2	30.3
Steady 45 mph	31.2	24.2
Steady 60 mph	24.9	18.5
Steady 75 mph	19.9	

Simulated traffic over measured course 20.0

BRAKE STOPPING DISTANCE

(To the nearest foot; checked with electrically actuated detonator)

30 mph	46
45 mph	98
60 mph	192

GENERAL SPECIFICATIONS

ENGINE

Type	1-head, 6 cylinder
Bore & stroke	3 x 4
Stroke/bore ratio	1.33:1
Compression ratio	7.0:1
Displacement	169.6 cu. in.
Advertised bhp	85 @ 4000 rpm
Piston travel	
@ max. bhp	2666 ft. per min.
Bhp per cu. in.	.501
Maximum torque	138 lbs.-ft. at 2400 rpm
Maximum bmep	122.8 psi

DRIVE SYSTEM

Standard transmission

Three-speed synchromesh using helical gears

Ratios

1st 2.60, 2nd 1.63, 3rd 1.0, reverse 3.53

Automatic transmission

Three-element torque converter with planetary gears for LOW and REVERSE ranges and intermediate gear

Ratios

DRIVE: intermediate, 1.43 x converter ratio (2.15 maximum at stall); high, 1.0; LOW, 2.31 x converter ratio; REVERSE, 2:1 x converter ratio

Overdrive transmission

Planetary type with manual lockout and accelerator downshift

Ratio

0.7:1 (overall 3.19)

Rear axle ratios

Conventional 4.10, automatic 4.10, overdrive 4.56

DIMENSIONS

Wheelbase	116.5 in.
Tread	Front 56.5, rear 55.5 in.
Wheelbase, tread ratio	2.08:1
Overall width	69.5 in.
Overall length	198.5 in.
Overall height	60.5 in.
Turning diameter	41 ft.
Turns lock to lock	4
Weight (test car)	2980 lbs.
Weight/bhp ratio	35:1
Weight distribution	Front 53.6%, rear 46.4%
Weight/sq. in.	
Weight/sq. in. brake lining	20.7 lbs.
Tire size	6.40 x 15
Tire loading (% of recommended maximum at curb weight)	Front 75%, rear 64%

SAFETY CHECK

DRIVER SAFETY

	YES	NO
Blind spot at left windshield post at a minimum?	X	
Blind spot at rear vision mirror at a minimum?	X	
Vision to right rear satisfactory?	X	
Windshield free from objectionable reflections at night?	X	
Dash free of annoying reflections?	X	
Left side of dash free of low projections?		X
Cigarette lighter, ashtray and glove compartment convenient for driver?		X

DRIVER AND PASSENGER

Front seat apparently locked securely at all adjustment points?	X	
Metal strip eliminated between front quarter window and main door window?		X
Rear view mirror free of sharp corners?	X	
Right side of dash free of projections?	X	
Adequate shock-absorbing crash pad?		X

REAR SEAT PASSENGERS

Back of front seat free of sharp edges and projections?	X
Rear interior door handles inoperative when locked?	X
Adequate partition to keep trunk contents out of passenger compartment on impact?	X

PRICES

(Including retail price at main factory, federal tax, and delivery and handling charges, but not freight.)

	Custom	Deluxe	Regal
Four-door sedan	\$1767.40	\$1862.83	\$1949.17
Two-door sedan	1735.12	1830.58	1916.92
Club coupe		1868.21	1954.55
Hardtop coupe			2115.80

ACCESSORIES

Automatic drive	\$231.24
Overdrive	104.99
Power steering	177.38
Radio	
6 tube	76.95
8 tube	99.50
Heater	71.75
Hill holder	15.08
Direction signals	24.90
White sidewall tires (additional cost per set):	
6.40 x 15	35.00

OPERATING COST PER MILE

(In this portion of the test table, MOTOR TREND includes those items that can be figured with reasonable accuracy on a comparative basis. The costs given here are not intended as an absolute guide to the cost of operating a particular make of car, or a particular car within that make. Depreciation is not included.)

Cost of gasoline	\$ 94.68
Cost of insurance	116.60
Maintenance:	
Wheel alignment	6.00
Brake reline (front only)	13.99
Major tuneup	10.80
Automatic transmission (adjust, change lubricant)	\$7.80
First year operating cost per mile (based on 10,000-mile annual average)	2.5¢

MAINTENANCE AND REPAIR COST ANALYSIS

(These are prices for parts and labor required in various repairs and replacements. Your car may require all of them in a short time, or it may require none. However, a comparison of prices for these sample operations in various makes is often of pertinent interest to prospective owners.)

	PARTS	LABOR
Distributor	\$ 19.00	\$ 2.00
Battery	20.95	.70
Fuel pump	5.38	2.00
Fan belt	1.95	2.00
Valve grind	2.47	38.00
One front fender	42.00	18.00
Two tires	44.02	
TOTALS	\$135.77	\$62.70

fuel pump can be serviced or removed without difficulty. The location of the oil dipstick spoiled an otherwise perfect record. **Is the trunk as large as others in this car's class?** The Champion sedan has a fairly large trunk, considering the width and height of the car. Vertical space is not limited, except where the deck lid slopes down toward the rear bumper. The spare tire, carried in a conventional vertical position at the right side of the trunk, protrudes slightly into usable carrying space in order to clear the right rear fender well. The trunk is hemmed-in at the rear by a four-inch sill, but loading ease is not lessened, for the low rear-end of the car eliminates any need for lifting baggage high off the ground to get it into the trunk. Overcenter springs are used to make the lid easy to lift.

Are body and trim construction up to par? The Champion's grille, made of lightweight metal, is simple in design and should not be costly to repair or replace. We feel that the grille is not afforded adequate protection by the bumper guards. Although mounted on a fairly sturdy bumper, the guards didn't appear to be capable of withstanding much more than the normal bumps received in parking. The body panels on our test car were poorly fitted, and the gaps around the trunk and hood panels were wider than usual. Overly-wide gaps were seen around the doors, and the alignment of the door panels seemed somewhat below the standard of some cars in this class.

The quality of workmanship on fenders and other body parts was average. The door jams were fairly smooth, with few wrinkles or rough weld marks showing. The wide-opening doors allow plenty of freedom for passengers entering or leaving either the front or back seats.

The Champion's paint showed signs of the effort to rid the finish of the Economy Run art work, and there were still traces of Mobilgas flying horses, and names of various cities painted on the car's surface. However, there was enough surface left untouched to tell that the car's original paint was smooth, and free of orange peel or other blemishes. **Will it be a durable car?** Yes, if the owner takes steps to prevent wear and tear from doing their harmful work on some of the car's more vulnerable spots. We feel that the Studebaker's seats, for example, should be covered with seat covers to give the best service. A close check of body trim, grille, bumper guard, and bumper sections might disclose loose metal plates that might eventually cause annoying rattles. Our test car had one such rattle, caused by loose "Studebaker" and "Champion" nameplates on the grille. This preventive maintenance should be a must with any new car you may buy, especially early production models like our Champion test car. In making these periodic checkups, you'll be able to point out any faults to your dealer, and have him correct them within the warranty period.

At the completion of the road test, the '53 Studebaker was solid and sound mechanically, and the engine ran quietly and smoothly; the interior showed no signs of wear.

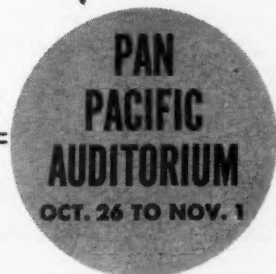
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ACCELERATE ...**

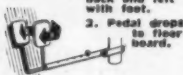
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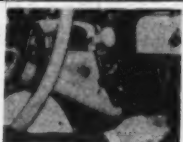
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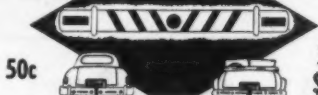
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ALMQUIST ENGINEERING

Engine 27, Pa.



good buy? It would be a good buy for the average driver who wants a serviceable car with adequate power and above-average economy. It is not a car for the driver who demands the utmost in acceleration, a high top speed, and a lush, plush interior in his car. The Champion is a hard car to beat for driving ease. It's a comfortable car, it excels in economy, and its initial cost is not too high. However, it remains below the standard of its class in interior appearance, and somewhat below its competitors in workmanship. Before the Studebaker is drawn and quar-

tered by hasty conclusions, we should add a word in its defense. Some of the models now seen on the streets are obviously later models, for they appear to be more "finished" than either of MT's Studebaker test cars.

We feel that advanced styling ideas, incorporated into this car by its designer, Raymond Loewy, have done much to make the Studebaker one of the "most-noticed" cars. There may not be a true title holder in the low-price field, but that doesn't say the latest Studebaker Champion can't put up a battle to become a true champion of its class.

Spotlight on Detroit

(Continued from page 10)

lengthen the lines of the car and an acutely frenched taillight bezel lends a flowing touch to the fender line.

Similar styling makeover will characterize other cars in the Chrysler Corporation line with horsepower boosts and mechanical refinements indicated. Plymouth should be ready with its ohv V-8 on schedule, probable horsepower around 125-130. Hy-Drive transmission will reportedly be retained. Colors also will be brighter on Chrysler products next year. Plymouth, for example, is reportedly to offer a truly yellow-yellow, even brighter than the mustard-brindle currently offered by Chevrolet.

STEP-DOWN GAINING IN 1954

At least one additional car will go to step-down design in 1954 to lower overall height. The problem of additional clearance for the transmission without making the tunnel height excessive is reportedly being met by a unique suspension for the automatic transmission, says a reliable source.

LINCOLN CONTINENTAL COMING

The long-awaited Lincoln Continental may be built in 1954! Considered by many the most beautiful American car ever built, the new Continental promises to carry on the tradition established by its predecessors. Featuring a shortened rear deck lid, according to reports, the new Continental will emphasize dramatic rear fender treatment and the famed Continental spare tire mount. Some body and trim changes are understood to be in store for all the Ford products in 1954, as well as adoption of an ohv V-8 by Mercury and, quite likely, Ford. In '55 Ford plans to go to a wrap-around windshield in the Crestline series.

STUDEBAKER CONVERTIBLE IN 1954

Dropped from the line this year, the convertible is reportedly to return to the Studebaker fold in 1954. Tooling expense limited initial production of the new-style Studebaker to coupes and sedans but factory officials point out that "when conditions warrant it" the convertible will be manufactured again. In the opinion of most experts, conditions will warrant it in 1954.

Studebaker recently won the Fashion Academy award with its Commander hard-top model.

FIRST 500 CC SPORTS CAR

The first 500 cc (Formula III) sports car to be announced in this country will soon be coming from Detroit. Based on American components, it will have midget racer wheels, with a 56-inch tread, 81-inch wheelbase. The Indian Warrior motorcycle engine (497 cc), giving 50 bhp at 9000 rpm, will power the car through a unique front-drive set-up. Body will be magnesium, holding the weight of the entire car down to 500 pounds. The cars will be produced by the Yankee Motor Car Co., Roseville, Mich., with production to start next year. Expected prices: \$1700 in kit form, \$2300 assembled. Fred Lavell, president, and Victor DeMaster, builder, are pointing toward Torrey Pines Road Race (sometime in September) with their first prototype.

THE NASH SMALL CAR

Now undergoing final engineering tests at the Nash Engineering Section in Detroit are five preliminary production models of the Nash NXI. Originally understood to be scheduled for introduction in September, it now looks like about November before the English-built economy cars will hit the road.

OTHER NEW MODEL CHANGES

Packard will have a facelifting on the Clipper series. The new V-8 will not be available for '54. Horsepower of the new engine, when introduced (probably in '55) will be higher than any previous Packard 8.

Hudson has a new body style tooled up for their '54 models. An engine change will come too. It's rumored that it will be the one to beat in the Pan-American Road Race, so you can look for more horsepower.

One of the manufacturers (not Pontiac) is coming out with a *sedanca de ville* type car (with an open section over the front seat) for '54.

TRADE-IN VALUE TO DROP

That new car is going to cost you more during the last half of 1953. Reason for the increase is the surplus of used cars now on the market. Here's the way it works:

The price of your new car will remain the same, possibly drop a little during the next few months. But dealers are finding used cars extremely hard to sell, particularly models older than 1950. That means they can't allow you as much on a trade-in as they have been able to previously and the difference you must pay for your new car is increased.

Many dealers in Detroit are giving a \$150 discount for cash purchase of a new car

to avoid the trouble of disposing of a trade-in job, so if you're planning on a new car better try to peddle your old one yourself... you'll be money ahead.

If you can't sell your old car yourself, shop around for the best deal. Even different dealers in the same town handling the same make of new car have varying inventories of new and used cars which affect the price they are willing to quote you on a new car.

STUDEBAKER MECHANICAL POWER STEERING

Remember the mechanical power steering unit announced by Studebaker early this year? When the operating noise could not be eliminated, Stude made a switch to the hydraulic integral power steering unit which it is buying from Saginaw Division of GM.

HEAT PUMP FOR YOUR CAR

An interesting device now undergoing tests is an automobile heat pump. Larger units of this type have long been used to heat and cool houses operating on the principle that heat can be removed by gas from either the ground or the house, concentrated and discharged into the other.

As applied to the automobile, the heat pump would remove heat from the cold air outside the car and concentrate it to heat the car in the winter. In summer the pump would be reversed and the heat would be removed from the car and discharged into the outdoors, eliminating the separate heating and air conditioning units now required.

In volume production, it is expected that the heat pumps will sell for around \$200, about one-third the cost of present car air conditioning systems.

NEW HEADLIGHT


Improved headlights for automobiles designed to provide more effective lights in critically illuminated areas are now in final stages of engineering development. Interchangeable with present headlights, the new unit gives a better light pattern distribution, especially for the lower beam along the road shoulder. It also incorporates a filament cap inside the unit to give better visibility in fog, to reduce the flash of light often encountered from oncoming cars at close range, and to provide greater light intensity for high-beam driving. The light is being recommended for acceptance at the American Association of Motor Vehicle Administrators' conference in October. With acceptance by the group and technical changes in some state laws, time for introduction of the new headlight can be established probably early next year.

Representatives from all over the country saw the new headlight demonstrated by the Automobile Manufacturers Association recently at the General Motors Proving Ground and their enthusiastic reaction indicates that the light will shortly be legal in all states.

NEW BATTERY BY WILLARD

Automatic power adjustment to meet varying demands of winter and summer driving is incorporated in a new storage battery developed by Willard Storage Battery Co.

(Continued on page 93)



QUAD-JET MANIFOLD

Model 452
(*49-'53 Ford and Mercury)


Model 452X
(*32-'48 Ford and Mercury)

Install EDELBROCK'S two-fisted championship team... built for greater power, speed and durability.

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You'll want extra pair for trunk, windows and hood.

Also available in crystal clear and patent black.

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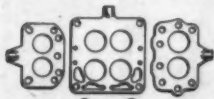
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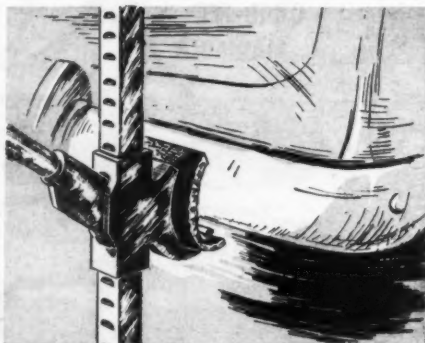
Send \$1.00, make and model car to:
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Ninety-two

What's Your Idea?

(It's worth any 10 back issues of MT if we publish it.)

Illustrated by George Wallace



MY CAR HAS a bumper jack that fits the contour of the bumper. To avoid marring and scratching the chrome on the bumper with the jack, I fitted a piece of old inner tube over the lip of the jack and glued the rubber to the jack with rubber-to-metal cement. I hope other motorists can use my idea.—*R.F. Caldgero, Brooklyn, N.Y.*

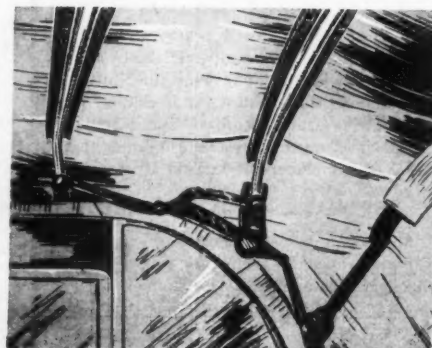
IF SOME OF THE leaf springs on your car squeak because they aren't padded, try this: put plenty of grease on a small plate, pry open the end of the unpadded leaves, and slip the plate halfway under the end of the leaf. The spring, riding on the greased plate, will no longer squeak.—*Walter B. Fisher, Lancaster, Pa.*



TO KEEP THE rear window of my car from fogging, I cut a hole in the package shelf, and another in the trunk floor (and installed a piece of two-inch pipe to keep water from splashing into the trunk). The resulting air flow has eliminated all fogging, and increased ventilation and heating nearly 100 per cent.—*Harold Brauer, Bronx, N.Y.*



AT HIGH SPEEDS, a convertible top tends to slap the crossbows under it. Realizing that this would soon wear out the top, I suggest cementing felt strips on top of the metal top bows. The felt strips will act as a pad between the fabric and the crossbows when the top slaps down.—*Jimmy Hutchinson, Rock Hill, S.C.*



Motor Trend

(Continued from page 91)

A manually operated key adjusts the battery water capacity to meet varying seasonal requirements.

For winter driving the battery will accept sufficient water to give a normal specific gravity. For summer driving, however, more water is added, lowering the specific gravity and providing greater resistance to the damaging effect of over-charging. The "Weathermaster" will be distributed in September.

STATIC ELECTRICITY IGNITION

A new static electricity ignition system for automobile engines requires no adjustment or tuning throughout its entire life. Heart of the new development is a static electricity generator invented in France. Final modification to adapt the system to American engines is being undertaken by Hackethorn Mfg. & Supply Co.

Engine speeds in excess of 6000 rpm and compression ratios greater than 12 to 1 are claimed to be possible since breaker points, which limit engine speed, are not used. The high intensity, low amperage current is also said to prevent spark plug fouling and burnt electrodes.

SELL 'N' SWAP

Requirements are: copy limit of 25 words (not including name and address), first come, first served; we reserve the right to edit where necessary; we are not responsible for accuracy of descriptions, although we will reject any misleading statements. This service is not open to commercial advertisers. No ads will be accepted if payment is not made in advance and such communications will not be acknowledged. Only one CAR may be listed in any single Sell 'N' Swap insertion. This limitation will not apply to parts, catalogs, etc. The charge is four dollars per insertion.

SELL

'37 CORD WESTCHESTER, new white lacquer, original throughout, excellent condition, \$800. Also body and engine parts, what do you need? W. Wickersham, 1523 W. Rovey, Phoenix, Ariz.

'37 CORD BEVERLY, new ivory lacquer, good condition, original, will deliver reasonable distance, \$800. Also blown and unblown engines completely rebuilt. W. Wickersham, 1523 W. Rovey, Phoenix, Ariz.

BARRIS CUSTOMIZED STUDEBAKER, '47, cover March '53 MT, also details given, dark blue Carson, ice blue body, off-white piped and rolled upholstery. Might swap for '52 or later stock car. T. Thornburgh, 751 W. 157th St., Gardena, Calif. ME10 4-3674.

'46 LINCOLN 66-H conv., excellent condition, will consider best offer. Will pay \$25 for info that will lead to location and purchase of an Owen-Magnetic. E. Young, 319 E. 326th St., Willoughby, Ohio.

NATIONAL AUTOMOTIVE SERVICE manual, complete specifications all cars manufactured in U.S. '29-'52. Includes classics such as Auburn, Cord, Duesenberg, La Salle, Marmon, Pierce Arrow, Stutz, \$100.00. R. Pryor, Rt. 5, Box 2279, Oraville, Calif.

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292 GMC ENGINE, complete, dual ignition, Winfield cam, three-pot manifold, headers, late head, clocked 109 mph in '47 Chevy Aero Sedan on gas, \$325. G. Bennett, 1809 Lorene St., Whittier, Calif. OK 5-1182.

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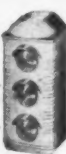
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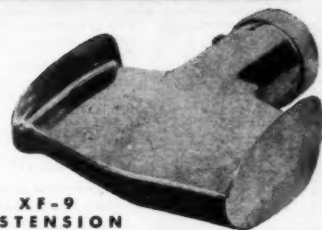
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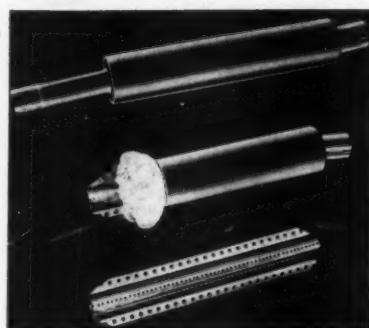
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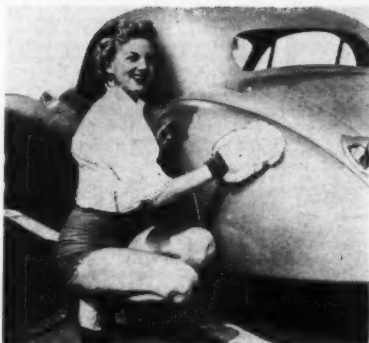
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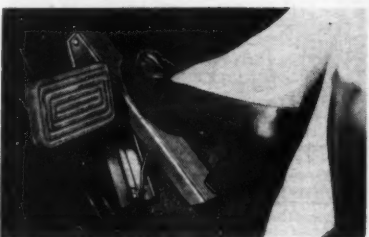
THE HIDDEN SECRET of the new Multi-Pack Muffler: a welded steel-core frame which separates the packing into four compartments around the exhaust passage. The packed Fiberglas strands (shown here) or steel shavings are held permanently in place by the patented design; the muffler is guaranteed for the life of the car. Tests show that the muffler will allow nine per cent horsepower increase (measured at the rear wheels). Price is \$7.95 for Ford, Chevrolet, Plymouth; \$1.00 more for others; tandem sets, \$12.95. National Engineering Corp. of America, Dept. P, 1122 W. Venice Blvd., Los Angeles 15, Calif.



MAGIC BUBBLE MITT, made from genuine lamb's wool, is said to take the drudgery out of car washing due to its special cleaning agent (not a soap, not a powder) that removes the grime dirt without taking the wax off your car's finish. Leaving an invisible protective coating that fills the pores of the surface of the car, the Magic Bubble Mitt, according to the manufacturer, prevents rain spotting; in fact, the result is such that the next time it rains, you'll get a free car wash. Complete with pellets, the Mitt costs \$1.98 postpaid, from Mehren Industries, Dept. P, Mehren Building, Beverly Hills, Calif.



LONG TRIPS become more of a pleasure for every driver using this gas pedal extender, says the maker, for it saves muscle cramp by distributing the pressure evenly over the entire foot. Fully adjustable to give full heel-to-toe driving comfort for even the shortest person, the pedal extender can be installed in less than 10 minutes. It is sold direct by mail for \$6.95 by Mehren Industries, Dept. P, 8666 W. Pico Blvd., Los Angeles 35, Calif.

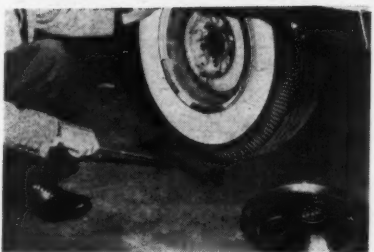
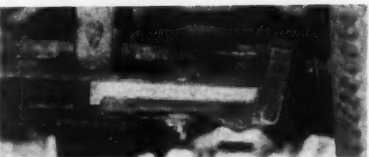
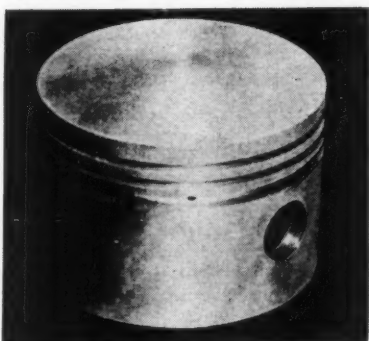
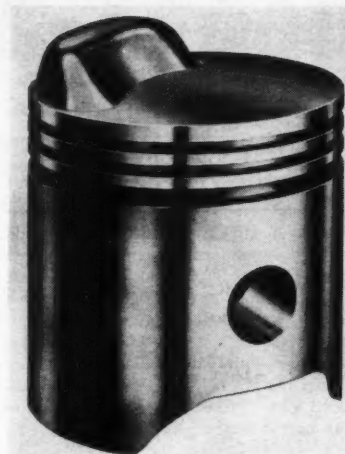


HERE'S A "CONTINENTAL" ACCESSORY that speaks for itself. Precision die-cast and triple chrome-plated, the insignie is designed to dress up any make or model car. According to company spokesmen, the lettering can be installed easily on doors, fenders, dashboard, or rear deck. The Continental Insignie is priced at \$1.00 each. Order from the C & H Auto Supply Company, Dept. 1441, 5864 Hollywood Blvd., Hollywood 28, Calif.



THE ADACK VERSATILE Ratchet Tool is claimed by its manufacturer to be the world's fastest and most versatile tool. Its ratchet and twin-axle design are said to give it automatic and fulcrum action, and it is not necessary for the user to expand his hand even at the maximum two-inch opening of the jaws. A double-pivot feature increases holding power, and allows nine different adjustments in jaw-opening size. A 3-in-1 tool (plier, wrench and pipe wrench), it sells for \$3.00 postpaid. Write R. Caluwaerts Co., Inc., 1 West 67th Street, New York 23, N.Y.





MORE POWER, speed, and economy for your Chevrolet! The makers of Speed-O-Motive Hi-Dome pistons claim Chevy owners can have all this, and higher compression ratios, too, without milling the head. Extending up into the cylinder head, the Hi-Dome pistons give a ratio of 8.25:1 with no engine alterations. A matched set of pistons comes complete with rings and pins for '37 to '52 Chevrolets for \$49. Slotted or solid skirts are available, and oversize pistons for "specials" can be supplied at slight extra cost. For additional information on Chevrolet flat-head or domed pistons, or on domed pistons for all late-model V-8s, write to: Speed-O-Motive, 9714 Garvey Blvd., El Monte, Calif.

THOMAS MAGNESIUM RACING Equipment Company has developed and is now producing pistons with a magnesium alloy which the company believes will give maximum operating service and keep operating costs at a minimum. Claimed to be the lightest and strongest piston made, the magnesium piston is said to be ideal where "hot fuels" are used, for it dissipates heat better than aluminum, and will stand 10,000 psi more pressure. For drag racing, and where acceleration is vital, a magnesium piston cannot be beat, according to the manufacturer. At the present time, the company is manufacturing the pistons for the Mercury engine only; they are available in five sizes, ready for immediate delivery. Price, \$67.50. For further information write: Thomas Magnesium Racing Equipment Company, 4362 Brewster St., Lynwood, Calif.

DOES YOUR CAR look like it's always being driven uphill? If you've used lowering blocks in the rear, here's an item that will give an equal drop at the front end of your coil-sprung car. The universal kit (fits 75 per cent of cars with front coil springs) can be had in either of two sizes; half-inch blocks for 1 1/4-inch drop, or one-inch blocks for a 2 1/2-inch drop. Price is \$8.95 F.O.B. Write Custom Enterprises, 5718 1/2 Bankfield Ave., Culver City, Calif.

A CLEANER AND WAX combination that is kind to both the finish and the waxer has been announced by Custom Products Ltd. British Formula Wax removes dirt and oxidized paint by dissolving it, rather than through the use of abrasives. Although slanted toward the sports car clan, it is also recommended for any car that's dirty and whose owner is allergic to excessive rubbing. Available by mail at \$1.50 per bottle from Custom Products Ltd., 729 1/4 N. Western Ave., Los Angeles 29, Calif.

AN AUTOMOTIVE ENGINEER has designed and built a new tool that is claimed to make tire changing a quick, easy job. Women should appreciate the invention, for the company passes on the information that the driver will not have to worry about soiling his or her clothes doing the job with the Clark Wheel Lift. Made of heavy-duty steel, it weighs less than four pounds, and folds into a compact package for tool-box storage. Unconditionally guaranteed, it sells for \$4.95. Write Clark Distributors, 1044 Fulton St., Room 505A, Fresno 21, Calif.



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If your car wants to konk out on a hill . . . if it lacks power for emergencies or burning oil . . . then you will want to try Fisher's Compression SEAL. Guaranteed to restore compression, reduce oil consumption and stop piston slap or your money back.

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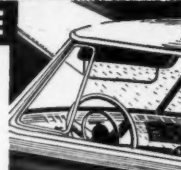
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Advertisers' Index

Abbott-Kiple	83
Accessories Ltd.	75
Aero-Tone	86
Air Lift Co.	83
Almquist Eng.	12, 86, 90
AP Parts	81
Auto Craft	95
Auto Discount	71
Auto Maniacs	96
Barris Kustom	76
Bell Auto Parts	74
Bert Sales	94
Bethlehem	94
Champion Spark Plugs	11
Clark's Corner	95
Clip-on Sales	92
Columbia Vol-Ta-Drop	92
Competition Chemicals	93
Competition Motors	94
Continental Battery	13
Douglas Muffler	5
DSM Electric	4
Eastern Auto Supply Co.	70
Edelbrock	91
Engine Products	9, Back cover
Fischer's	97
Flanges	92
Four-Way Welder Co.	86
Grand Auto Parts	72
Handicap Productions	96
Harman & Collins	6
H. C. Products Co.	73
Hollywood Safety Tape	90
Hollywood Sales	97
Honest Charley Speed Shop	78
Howard Industries, Inc.	95
Hudson-Whitebone Co.	8
Hudson Vitamins	95
Janak	90
Key Kap Co.	94
King, Charles E.	79, 87
Kleinman's	95
Kozak	86
La Salle	93
Mallory Electric	14, 15
Marde	97
McBar Machine	94
Mehren Ind.	99
Michigan Mobil Parts	16
Morbarco Mfg. Co.	96
Morgan, Frank	94
Motor Sports Show	81
Motorama	89
Motorists' Benefit Club	71
Murray Hill	96
National Parts Co.	95
National Schools	77
Newhouse Automotive	3
Nielson, A. E.	90
Offenhauser	86
Ollie Auto Top	95
Porter Muffler	87
Post Motor Books	95
Pure Oil	7
Q-T Distributing	97
Service Motors	94
Smith's Muffler Mfg. Co.	75
Snap-on Tools Corp.	89
So. Cal. Muffler Co.	69
Speed-O-Motive	96
Spot Enterprises	96
Standard Automotive	93
Tasope	87
Tsungan	95
Warn Mfg. Co.	94
Weiland	97
Whitehead, R. E.	96
Whitney, J. C.	95
Young Products	86

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(Continued)

'47 LINCOLN CONTINENTAL hardtop, excellent condition, two-tone green, sell for \$1975, or swap for late model car, deliver 480 miles or meet reliable party halfway. D. Schroeder, 310 S. Ash, Hillsboro, Kans.
SPORTS CAR, built from late model Ford chassis, Olds 88 engine, Hydra-Matic, aluminum body, three passenger, red with black interior. B. Arthur, Box 153, Elnora, Ind.

Southern California in Three Days

(Continued from page 37)

Since Juan Rodriguez Cabrillo landed here in 1542, San Diego has had many different lives. Its reputation for being an old people's home has vanished, and young families are now its typical residents. Fast jets and slow patrol planes identify it immediately as an aircraft center, and submarines and freighters crowd the Bay. The Balboa Park Zoo deserves its international reputation; so does San Diego Mission, founded by the legendary Father Junipero Serra. Straight south on 101 is Tijuana. Be sure your insurance is valid in Mexico; if not, you can buy a temporary policy. Then cross the Border to see *jai alai* (played, like a frantic variety of tennis, with huge spoon-shaped wicker racquets strapped to the players' wrists) on Thursday or Sunday night; Agua Caliente, a few miles farther, has dog racing Wednesday through Sunday, also at night.

On your way back from Mexico, take Highway 75 through Palm City and up through Silver Strand State Park (along the western edge of San Diego Bay) to Coronado. Take the ferry across, then round the north end of the Bay to Point Loma and Cabrillo National Monument. Drive up through Pacific Beach (with some of the most attractive and typically Western motels on all the Pacific Coast) to beautiful La Jolla, and proceed to disregard all road signs. To see La Jolla, you'll want to stay as close to the beach as you can, no matter how many turns you have to make. You'll discover for yourself that every view is different. Stop and explore the caves and the famous cove. By the recommended procedure of clinging to the beach, you will automatically find yourself going through a pretty little cut on Torrey Pines Road, which leads to 101 and your route north. Keep in the center lane after hitting the main highway, and a tiny sign will direct you across the oncoming traffic to Torrey Pines City Park, site of the Torrey Pines Road Race and of a stretch of highway that was the *bête noire* of early Western motorists.

The rest of your ride is up U.S. 101, probably as busy a hundred-mile stretch as any you might name. It's quieter in the middle of the week. Words are rather puny to describe the Pacific; a fairly large-scale map will give you an idea of the infinite beaches, inlets, campsites, and parks that stretch to Los Angeles and beyond. Take your time, and stop often.

Five miles beyond San Clemente, 101 turns inland to San Juan Capistrano, home of the swallows. The garden somehow retains its serenity even with hundreds of

TYPE 44 BUGATTI, 3 liter, eight-cylinder, overhead cam, three valves per cylinder, open touring sports body on 121 in. wheelbase, \$1500 or MG in trade. J. Whitaker, Southdown Rd., Huntington, N.Y.
'50 FORD four-door, maroon, with '59 Olds engine, Hydra-Matic, whitewalls, \$1275, or swap for '50 Ford to modify and cash. E. Erickson, 36 Cambria Rd., Rochester, N.Y.
'42 FORD coupe, exceptional condition, want Card 810, 812. Must be 90% intact, driving mechanism good condition, body, interior condition immaterial. Must be dependable runner. F. O'Donnell, 819 Elizabeth Rd., San Antonio, Texas.

visitors in it. Now turn back to where you left the coast and continue north on 101A through Laguna Beach and its art colony, plus our nomination for the world's most delightful city park. There's mild play equipment for the children, and a dozen picnic tables, each with barbecue, private terrace cut from the face of the cliff, and an unobstructed view to the horizon. If your tastes run to hopping from rock to rock to investigate marine life, this is the spot. Go surfing if you like, but stay close to shore: there's no lifeguard, and lots of seaweed.

As you leave Corona del Mar, watch for the neon sign to Balboa Island. You go over on a causeway; after nosing about the Island, take the ferry to Balboa itself, and drive northwest through Newport to 101A. Newport Bay is the West's largest pleasure harbor. Some 5000 sail and motorboats, from dinghies to luxurious schooners, make this their home port.

A forest of oil derricks distinguishes Huntington Beach from its less utilitarian neighbors; nonetheless, the beach itself is one of the finest. Leave 101A at Seal Beach and drive along Ocean Boulevard through Long Beach. To San Pedro, you may go by way of the busy Terminal Island ferry, or around via Pico and Anaheim Streets to Highway 11. Turn left here and go south on Pacific to Point Fermin. Again stay as close to the water as possible (heading generally northwest) and you will land on Palos Verdes Drive, ready for one of the most spectacular sections of your trip. The Portuguese Bend-Palos Verdes road will land you in Redondo Beach, where you can continue through other beach towns to Santa Monica and Malibu, or return more directly to the center of Los Angeles.

It's a dangerous trip, in a way. You see, we're not Coloradoans any more. We have become horribly enthusiastic Southern Californians.

—W. Robert Nitske with Pete Molson

NEXT MONTH

Don't miss the comprehensive analysis and tests, by MT RESEARCH, of

"7 ECONOMY CARS"

Also featured:

"How Safe Are Our Cars?"

"Those Shocking Seat Covers"

"Customizing Ideas from Europe"

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ON YOUR NEWSSTANDS

September 25th

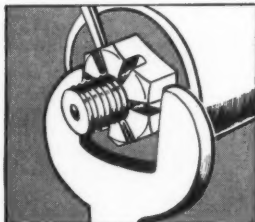
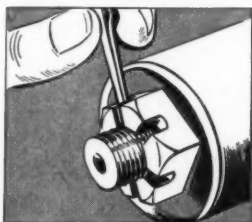
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Plus Safer, More Accurate Steering

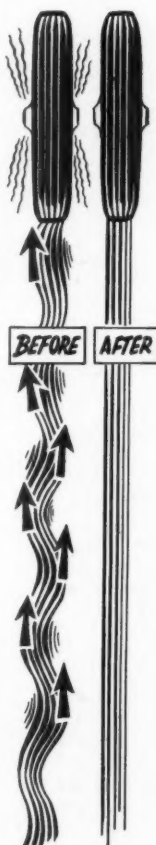
Precision Machinist Finds Simple Answer to Problem that Baffled Experts for 42 Years!



YOUR CAR IS ACTUALLY DRAGGED SIDWAYS as much as 55 feet every mile you drive because of "snaketracking" (see illustration at right) due to loose front wheel bearing nuts. This causes bearing play, excessive, uneven wear and "cupping" of front tires, hard steering and alignment problems.



CONVENTIONAL SLOTTED bearing nut is first adjusted to correct setting. Then the trouble begins: because no two slots line up with the hole in the spindle, nuts must be backed off from correct position until (by trial and error) cotter pin fits in one of six slots. Thus the nut is almost always too tight or too loose. The "built-in" looseness is magnified 40 times from the spindle to the tread of your tire, causing as much as $\frac{3}{8}$ " tread wobble.



Odds are 100 to 1 against accurate wheel bearing adjustment in your car—regardless of how much it cost, or how new it is. A fundamental weakness in the design of conventional front wheel bearing nuts makes it nearly impossible to adjust wheel bearings accurately, or readjust them accurately as wear occurs. This play in front wheel bearings causes re-alignment and adjustment problems. Your tires, brakes and bearings wear out faster than they should; steering is harder and less accurate—all because of excessive front wheel wobble.

Detroit engineers, with millions of dollars of equipment at their disposal, have never found the answer to this "unsolvable" problem of automotive design.

Then a precision machinist named Polizzi—whose only connection with the automotive industry was that he owned an automobile—discovered the answer. Like many baffling problems, the answer was astonishingly simple. Instead of attempting to improve on the conventional castellated nut, Polizzi abandoned it entirely and designed a nut with two parts that lock together in precision adjustment. Called the "greatest advance in wheel engineering in 42 years" his "Educated Nut" makes front wheel bearing adjustment *10 times more accurate*—so precise that it even eliminates the need for balancing wheels, and for the first time makes perfect wheel alignment possible.

One big trucking company reported a \$18,000 saving the first year on wheel bearing replacement alone—plus tire, brake, and bearing replacement costs—always a major headache in the industry. Other fleet operators, as well as thousands of private car owners, have also reported big savings.

Save \$20-\$50 This Year on Tire, Brake, Bearing Wear and Wheel Alignment!

Send for 10-Day Free Trial Offer

Send us your name and address, make and year of car, plus only \$2.98 for complete set for any passenger car (for trucks, trailers, buses and tractors, write for special prices). We'll send you a set of "Educated Nuts" postpaid. If they don't do all we say they do, send them back for full refund; no obligations, no questions asked.

Write today!

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Gentlemen: Please send me a set of "Educated Nuts" to try in my car for 10 days. If not entirely satisfactory, I may return them for full refund without obligation.

() I enclose \$2.98; you will pay postage

() I enclose \$1 deposit; send C.O.D.

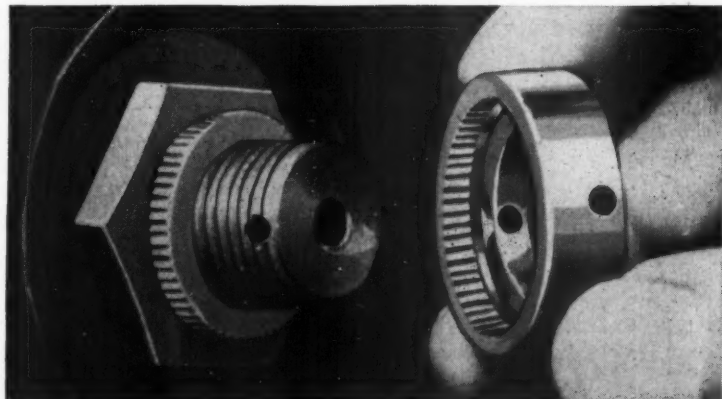
Name.....

Make of Car.....Year.....

Address.....

City.....Zone.....State.....

Dealer Inquiries Invited!



HERE'S HOW THE "EDUCATED NUT" solves the problem with interlocking construction. First, the hexagonal part of the nut is tightened to exactly the right setting, and it is never moved from that position. Bearings are locked in precision adjustment (leading automotive magazine reports .001 accuracy!) with ingenious 60-point micrometric head. Saves tires, bearings, brakes—even eliminates 90% of brake squeaks. Actually easier to install than conventional nut.



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"Oil Poisoning" causes 97 out of every 100 cars in America today to be junked prematurely. Part of this Billion-Dollar annual waste comes out of *your pocket!* By the time you finish reading this, you will know how a new scientific development can stop this destructive action in your car, let you drive up to 10,000 miles without changing oil, and add *years* to your car's useful life!



If your car is "dime-ing you to death" for repairs, chances are that "oil poison," (carbon, dirt, and abrasives carried by the oil stream) has been grinding away the precision surfaces of engine parts, causing power loss, overheating, and gas & oil waste. Ordinary filters, like the ones furnished on most new cars can't stop this constant deterioration. The industry's engineers were baffled, until...



During the war, filtration experts, cooperating with top metallurgists, developed for aircraft use an entirely new kind of oil filter cartridge, one so efficient it traps dirt particles as small as 39 millionths of an inch; so simple, it requires practically no maintenance; and so durable, it lasts—literally for a *lifetime!* This same new filter is now available to protect your engine from dirty oil damage.



The new Lifetime cartridge is made of millions of microscopic bronze balls fused into a cone-shaped wall through which all oil must pass. It is not affected by temperature change or crankcase dilution. It causes less pressure drop than any other type, will not screen out protective detergents, and is the *only* medium known that will not by-pass cold oil.



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5801 E. Beverly Blvd., Los Angeles 22, Calif.

Ship _____ Conversion _____ Complete _____ Full Flow

Lifetime filter for Year _____ Make _____

Model _____ Old filter _____

Name _____

Address _____

City _____ Zone _____ State _____

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☐ Deposit enclosed, send C.O.D.

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